

REPORT
OF THE
Health Department
OF
The Panama Canal
FOR THE
CALENDAR YEAR
1933

Gift of the Panama Canal Museum



J. F. SILER
Colonel, Medical Corps, United States Army
CHIEF HEALTH OFFICER

BALBOA HEIGHTS, CANAL ZONE

THE PANAMA CANAL PRESS
MOUNT HOPE, C.Z.
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REPORT FOR THE CALENDAR YEAR 1933

ORGANIZATION AND ACTIVITIES

The Health Department constitutes one of the five major administrative units of The Panama Canal organization functioning directly under the Governor, and its organization and activities were somewhat comprehensively outlined in the annual report of the Health Department for 1930.

PERSONNEL

The only change in personnel assigned to important key positions was that of Chief Quarantine Officer, Surgeon Charles V. Akin, United States Public Health Service, having been designated as Chief Quarantine Officer, The Panama Canal, on October 14, 1933, vice Surgeon M. Flint Haralson, United States Public Health Service, relieved on account of termination of tour of duty with The Panama Canal.

Total personnel in the service of the Health Department on December 31, 1933, was 1,025, a reduction of 22 in the white American (gold) personnel, and 79 in the colored alien (silver) personnel, under the previous year; total reduction 101. The principal reduction in personnel (70) occurred at Corozal Hospital for the Insane, and was occasioned by the fact that in July 1933, 592 patients, the responsibility of the Government of Panama, were transferred to the Panamanian Government asylum for the insane. The remaining reduction in force, 31 in number, was distributed generally among other Health Department units and resulted from necessary curtailment in operating expenses to balance the budget.

Total personnel in the employ of the Health Department, by units, for each of the five years 1929 to 1933 inclusive, has been as is indicated in the following table:

FORCE REPORT, HEALTH DEPARTMENT, FOR DECEMBER, EACH YEAR

	1929			1930			1931			1932			1933		
	Gold	Silver	Total	Gold	Silver	Total	Gold	Silver	Total	Gold	Silver	Total	Gold	Silver	Total
Chief Health Office.....	7	.....	7	7	.....	7	7	.....	7	6	.....	6	5	.....	5
Gorgas Hospital.....	176	299	475	167	267	434	169	243	412	162	252	414	157	249	406
Colon Hospital.....	25	52	77	29	54	83	32	55	87	32	55	87	29	54	83
Corozal Hospital ¹	19	144	163	22	141	163	21	138	159	21	139	160	11	79	90
Line dispensaries.....	18	9	27	16	15	31	17	15	32	16	17	33	18	17	35
Palo Seco Leper Colony ¹	2	36	38	1	28	29	1	28	29	1	28	29	1	28	29
Quarantine service.....	10	23	33	11	20	31	12	20	32	12	19	31	9	18	27
Health Office, Panama.....	11	128	139	11	118	129	11	118	129	11	105	116	8	106	114
Health Office, Colon.....	9	88	97	9	87	96	8	89	97	8	95	103	8	89	97
Zone sanitation.....	5	112	117	6	117	123	6	120	126	6	141	147	7	132	139
Total.....	282	891	1,173	279	847	1,126	284	826	1,110	275	851	1,126	253	772	1,025

NOTE.—“Gold” are white American employees, with the exception of two white aliens and one colored alien.

“Silver” are alien employees, principally West Indians (colored).

¹ Includes inmates paid for services rendered.

The distribution of the gold personnel (white Americans except 3) on the basis of professional and other special qualifications, was as follows:

33 physicians, medical officers of the U.S. Army	8 dispensary assistants
1 physician, surgeon of the U.S. Public Health Service	5 pharmacists and assistant phar- macists
27 physicians, civilian	2 chemists
1 dentist, U.S. Army	2 general mechanics
3 senior internes	2 stewards and stewardesses
7 junior internes	2 dietists
4 male nurses	1 storekeeper
95 female nurses	1 dental hygienist
2 district nurses	1 carpenter foreman
26 clerks	1 chauffeur foreman
12 sanitary inspectors	1 physio-therapy aide
1 sanitary assistant	1 electrician
1 quarantine inspector	1 embalmer
4 veterinarians	
8 technicians	

FINANCIAL STATEMENTS

Operating expenses for the Health Department as a whole were \$159,286 less than for 1932; and comparable earnings were \$93,326 less. Operating expenses and earnings by units are set forth in the following table:

OPERATING EXPENSES AND EARNINGS OF THE HEALTH DEPARTMENT,
CALENDAR YEAR 1933

	Operating expenses	Earnings	Percentage self-supporting
Chief Health Office -----	¹ \$29,065.09		
Gorgas Hospital -----	² 703,920.95	\$328,555.38	47%
Colon Hospital -----	³ 150,595.56	83,762.33	56%
Corozal Hospital -----	⁴ 126,737.28	105,754.80	83%
Palo Seco Leper Colony -----	37,624.01	24,666.75	66%
Line dispensaries -----	97,522.63	36,790.17	38%
Medical store -----	6,629.56		
Quarantine service -----	⁵ 68,149.64	17,881.46	26%
Sanitation of Panama City and Colon -----	57,346.73	9,799.76	17%
Street cleaning and garbage collection and disposal, Panama City and Colon. -----	132,716.75	117,581.79	89%
Canal Zone sanitation -----	132,625.09	49,769.02	38%
Total -----	⁶ 1,542,933.29	774,561.46	50%

¹ Includes Army pay of Chief Health Officer, which amounted to..... \$6,120.00

² Includes Army pay of Army medical officers on duty in this institution, which amounted to..... 101,680.36

Also includes cost of operation of Board of Health Laboratory.

³ Includes Army pay of Army medical officers on duty in this institution, which amounted to..... 28,290.75

Also includes cost of operating Colon dispensary.

⁴ Includes Army pay of Army medical officers on duty in this institution, which amounted to..... 11,425.41

Total Army pay of Army medical officers on duty in the Health Department..... 147,516.52

⁵ Includes Public Health Service pay of Public Health Service officers acting as Chief Quarantine Officer.. 5,078.45

⁶ Includes Army and Public Health Service pay, which amounted to..... 152,594.97

OPERATING EXPENSES OF THE HEALTH DEPARTMENT, CALENDAR YEAR 1933,
SHOWING AMOUNTS CHARGED TO VARIOUS ACCOUNTS

Gold pay roll (white employees):

Panama Canal pay-----	\$567,975.61	
Army pay-----	147,516.52	
Public Health Service pay-----	5,078.45	\$720,570.58

Silver pay roll (colored employees)----- 372,165.57

Subsistence supplies----- 166,411.35

Ice----- 4,555.90

Hospital supplies and drugs----- 71,329.41

Equipment----- 18,908.75

Miscellaneous supplies----- 32,360.91

Laundry----- 26,404.66

Telephones----- 15,037.41

Repatriation of patients physically or mentally disabled----- 955.49

Medical storehouse operation----- 6,629.56

Marine Division, launch and bus service for boarding parties----- 6,173.62

Electric current----- 16,307.18

Electric repairs and installations----- 4,349.74

Water----- 9,994.00

Freight----- 13,751.15

Mechanical Division, repairs and miscellaneous work----- 3,813.57

Motor transportation charges (except for hospitals, quarantine station, and dispensaries which operate their own motor vehicles)	\$47,325.43
Repairs to motor vehicles of hospitals, dispensaries, and quarantine station	2,182.84
Rental of quarters	555.82
Construction Quartermaster, building repairs	2,400.70
Municipal Engineering Division, work	2,852.70
Sale of buildings and surplus equipment, Corozal Hospital	(6,446.12)
Miscellaneous expenses	4,343.07
Total expenses	1,542,933.29

The extent to which the various units of the Health Department have been self-supporting each year for the past 10 years is shown in the following table:

	Percent self-supporting (Army pay included)									
	Calendar years—									
	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
Gorgas Hospital	52	53	51	57	54	52	49	46	47	47
Colon Hospital	41	39	37	44	44	52	59	52	51	56
Corozal Hospital	81	82	80	85	76	88	86	89	94	83
Palo Seco Leper Colony	40	45	38	46	41	46	55	44	65	66
Line dispensaries	27	34	35	32	34	35	32	31	43	38
Quarantine Division	38	46	53	35	38	49	35	32	24	26
Sanitation, Panaman and Colon	17	20	18	11	13	16	12	15	14	17
Street cleaning and garbage collection and removal, Panama City and Colon	58	60	61	81	82	82	81	82	82	89
Zone sanitation	39	37	29	29	29	37	36	33	35	38
Health Department as a whole	48	50	49	53	51	54	52	49	51	50

PATIENT DAYS SPENT IN PANAMA CANAL HOSPITALS
NUMBER OF PATIENT DAYS IN HOSPITALS AND ASYLUMS

	1929	1930	1931	1932	1933
Gorgas Hospital	184,506	163,975	165,050	149,812	149,292
Corozal Hospital:					
Insane patients	209,794	228,862	228,327	253,240	172,413
Cripples and chronic medical and surgical cases	27,623	28,923	29,833	31,802	33,696
Colon Hospital	30,755	41,158	41,508	35,379	31,378
Palo Seco Leper Colony	36,568	36,102	34,947	38,543	34,422
Total	489,246	499,020	499,715	508,776	421,201

The number of patient days spent in all Panama Canal hospitals was 421,201, representing a decline of 87,575 under the previous year. The transfer in July 1933, of Panamanian insane to the Panamanian Government asylum accounts for 80,827 patient days of this reduction, the net reduction in patient days under the previous year being 6,748. The average strength of force in the employ of The Panama Canal in 1933 was only 277 less than in 1932, and the number of employee patient days was 1,460 less (1932, 47,077; 1933, 45,617). There was a decrease of about 14,500 patient days in the group of patients drawn

from families of U.S. Government employees, government contractors, private patients, and others entitled to treatment. The number of patient days chargeable to charity increased by about 5,300 (1932, 66,028; 1933, 71,379). During the past few years the military garrisons in the Canal Zone have increased materially (1928, 8,380; 1933, 9,817), and proportionately the number of patient days spent by military personnel in Panama Canal hospitals has been much greater (1929, 32,814; 1932, 50,674; 1933, 59,946)—about 10,000 more patient days in 1933 than in 1932. The net decline in patient days (6,748) is attributable to economic conditions (reduction in pay of employees, and unemployment), reduction in activities of contractors engaged in U.S. Government construction projects, and to some extent to an agreement made in October 1933, between the President of the United States and the President of Panama, which provides that hereafter no persons except U.S. Government employees and their families will be entitled to treatment in Panama Canal hospitals, except in emergency.

AVERAGE COST PER PATIENT PER DAY IN PANAMA CANAL HOSPITALS

	Calendar years				
	1929	1930	1931	1932	1933
Gorgas Hospital:					
Including total cost of Board of Health laboratory and undertaking service.....	5.08	5.40	5.07	5.03	4.71
Including only the cost of work done for this hospital by the Board of Health laboratory and its undertaking service.....	4.87	5.16	4.83	4.76	4.47
Colon Hospital:					
Including cost of Colon dispensary.....	5.18	4.27	4.39	4.72	4.80
Including cost of Colon dispensary, also including the cost of the work done for this hospital by the Board of Health laboratory and its undertaking service.....	5.55	4.55	4.65	5.04	5.12
Excluding cost of Colon dispensary, but including the cost of the work done for this hospital by the Board of Health laboratory and its undertaking service.....	4.84	3.96	4.11	4.39	4.47
Corozal Hospital:					
Including cost of operation of dairy until December 1930; also including cost of gardens and cemetery.....	.90	.88	.70	.65	.61
Same as above, also including cost of the work done for this hospital by the Board of Health laboratory and its undertaking service.....	.92	.90	.72	.67	.64
Palo Seco Leper Colony:					
Not including work done by the Board of Health laboratory and its undertaking service.....	1.25	1.06	1.35	.96	1.09
Including cost of the work done for this institution by the Board of Health laboratory and its undertaking service.....	1.26	1.07	1.36	.97	1.10

NOTE.—Owing to the multiplicity of functions of the various units of the Health Department, the exact cost per patient per day (in-patients) is impossible to determine. At Gorgas Hospital a large number of out-patients are treated in the various clinics; also the Board of Health laboratory, including the undertaking establishment (which does the embalming and cremating, and handles the shipment of bodies, for all units of the Health Department) is operated as a part of the hospital; the Board of Health laboratory does work for various divisions of the Health Department and for other departments of the Canal and for the Army. At Colon Hospital the dispensary is manned by hospital personnel and it is operated as a part of the hospital; they have no undertaker, but furnish coffins and hearse service for the remains of colored patients dying therein.

In the foregoing table no effort is made to exclude the cost of any of the miscellaneous work of the hospitals from the cost of caring for in-patients, except that in the second figure shown of per-patient per-day cost for each institution an effort has been made to include the proper percentage of expense of the Board of Health laboratory and its undertaking service chargeable to such institution; also the cost of Colon dispensary has been deducted in the third figure of cost per-patient per-day for that institution, in order to make it more nearly comparable with Gorgas Hospital. The proportion of the expense of the Board of Health laboratory chargeable to each institution was arrived at by a check of the work of the laboratory over a short period of time; on account of variation of the work it is more or less arbitrary.

VITAL STATISTICS

POPULATIONS OF THE CANAL ZONE, PANAMA CITY, AND COLON

The Health Department of The Panama Canal secures, analyzes, and makes reports on the vital statistics (births, deaths, and disease rates) of three geographical units of the population residing on the Isthmus of Panama, namely, the population of the Canal Zone, of the city of Panama, and of the city of Colon.

Properly to interpret these statistics, it is essential that there be some understanding of the composition of the various units of the population, their movement, and some of the special local factors involved which usually are not encountered in stabilized populations in many parts of the world. These special factors were discussed somewhat in detail in the annual report of the Health Department for 1930 (pages 12 to 15, inclusive) which can be obtained on request to the Chief Health Officer, Balboa Heights, Canal Zone.

The Republic of Panama takes a census every 10 years, the last enumeration having been made in 1930. In Panama City, from 1920 to 1930, the population made an average increase per year of almost exactly 1,500, and that figure has been used as the factor in computing the population each year since 1920 by arithmetical progression. For 1933 the population is estimated to be 79,000 (arithmetical progression).

In Colon, from 1920 to 1930, the census figures indicate an average decrease of 150 per year, and that figure has been used as the factor in computing the population between 1920 and 1930 by arithmetical progression. As there is some doubt as to the accuracy of the 1930 census of Colon, 30,000 was adopted for 1931, and continued since.

The population of the Canal Zone consists of white American employees and their families, colored alien employees and their families, military and naval garrisons, representatives of shipping companies, contractors, church and welfare workers, etc., and colored alien agriculturists who rent land under revocable licenses. A census of the Canal Zone population is taken each year and all figures for this group are actual rather than estimated.

The term "employees" as used in Health Department reports includes employees of The Panama Canal proper and the Panama Railroad Company, which is a corporation owned by the United States Government.

GENERAL DEATH RATES, ALL CAUSES, AND DISEASE ONLY

Death rates from all causes for all groups of the population have been analyzed since the beginning of construction (1905) and those

from disease only have been tabulated since 1913. Statistical tables covering these data are incorporated in the annual report for 1931.

In this report (1933) the vital statistics incorporated will be limited, as was done in the annual report for 1932, to a presentation and brief discussion of death rates for the current year and a tabulation of rates by consecutive 5-year periods to indicate general trend.

Health conditions for all groups (Canal Zone, Panama City, and Colon) of the population were good; there were no epidemics; malaria prevailed to a somewhat greater extent than is usual; morbidity and mortality rates continued their downward trend and in some respects declined to an all-time low point.

Canal Zone.—The death rate from all causes in the calendar year 1933 was 7.12 per 1,000 of population, the lowest of record (population 42,851, deaths 305). Deaths from disease only totaled 271 or a rate of 6.32 per 1,000 of population, the lowest rate of record since 1913 except for the years 1930 and 1931, when comparable rates were 6.13 and 6.09 respectively.

The general trend of death rates in this group of the population of the Isthmus during the past 20 years, both from all causes and from disease only, has been very definitely a downward one as is evidenced by the following analysis of rates for the past 20 years by 5-year periods.

CANAL ZONE DEATH RATES BY 5-YEAR PERIODS

	1914-18	1919-23	1924-28	1929-33
Total death rates per 1,000 population.....	11.79	8.00	8.38	7.35
Death rates from disease per 1,000 population.....	9.96	6.98	7.23	6.35

Panama City.—During 1933 the death rate from all causes was 14.95 per 1,000 of population (deaths 1,181, population 79,000), the lowest of record (1905 to date). The death rate from disease, 14.30 per 1,000 of population (deaths 1,130, population 79,000), also was the lowest of record. The trend in death rates from all causes and from disease only has been continuously attaining lower levels during the past 20 years as is clearly evidenced in the following tabulation of these rates, by 5-year periods, since 1914:

PANAMA CITY DEATH RATES BY 5-YEAR PERIODS

	1914-18	1919-23	1924-28	1929-33
Total death rates per 1,000 population.....	28.45	20.20	18.12	17.04
Death rates from disease, per 1,000 population.....	27.45	19.51	17.51	16.31

Colon.—In 1933 the death rate from all causes was 16.27 (deaths 488, population 30,000) and from disease only, 15.63 (deaths 469,

population 30,000). These rates are considerably in excess of the comparable rates for any year since 1921, except for the years 1929 and 1930. The population figures for Colon have been held at the constant figure of 30,000 since the 1930 census, as that census showed no material change in the total population for the 10 years intervening between 1921 and 1930.

The trend in death rates in Colon by 5-year periods for the past 20 years is shown in the following table which indicates that death rates have been increasing during the past five years:

COLON DEATH RATES BY 5-YEAR PERIODS

	1914-18	1919-23	1924-28	1929-33
Total death rates per 1,000 population	24.92	16.42	14.48	16.13
Death rates from disease per 1,000 population	23.75	14.56	13.80	15.29

BIRTH RATES

Canal Zone (employees and nonemployees).—In 1933 the birth rate for children born alive in the Canal Zone was 10.78 per 1,000 of population (births 479, population 42,851). There were 17 stillbirths, rate 0.40 per 1,000 population, which, though slightly higher than for 1932 (0.31) is less than one-half the rate usually experienced in previous years. The birth rate (total) for 1933 (11.18 per 1,000 population) was less than for 1932 (11.69). The decline in birth rates for this group of the population has been continuous from year to year since 1924 when it was 21.65.

The persistent decline in birth rates for both groups of the population—white and colored—can be well appreciated by analyzing these rates by 5-year periods for the past 15 years:

CANAL ZONE BIRTH RATES BY 5-YEAR PERIODS, BY COLOR

	1919-23		1924-28		1929-33	
	White	Colored	White	Colored	White	Colored
Total birth rate per 1,000 of population	16.80	28.95	12.75	22.05	9.36	15.03
Live birth rate per 1,000 of population	16.31	27.30	12.26	20.66	9.13	14.09
Stillbirth rate per 1,000 of population .....	.49	1.64	.41	1.39	.23	.94

As has been pointed out in previous annual reports, the low birth rate in the white American population is influenced by the fact that the unmarried military population amounting at the present time to about 10,000 individuals constitutes about one-half of this group.

The colored population is now a fairly well stabilized one. The total rate for this group in 1933 was 13.11 per 1,000 of population.

The decline in this group also has been persistent and continuous since 1924 when it was 26.40. In the near future a considerable proportion of the generation of the colored population born in the Zone will have reached the age of reproduction, subsequent to which time it may be anticipated that birth rates will increase.

Panama City.—In 1933 there were 2,607 children born in the city of Panama, population 79,000 (rate 33 per 1,000 of population). Of the total births, 2,508 (31.75 per 1,000) were born alive and 99 (1.25 per 1,000) were stillborn. There has been a continuous decline in the rates for stillborn since 1930 when it was 1.80 per 1,000. Incidentally it may be stated that in 1916 the rate for stillborn was 3.73. During the past 15 years birth rates have tended to decline slightly as is evidenced in the following analysis of these rates by 5-year periods:

PANAMA CITY BIRTH RATES BY 5-YEAR PERIODS

	1919-23	1924-28	1929-33
Total birth rate per 1,000 population.....	37.39	34.49	34.00
Live birth rate per 1,000 population.....	35.24	32.74	32.47
Stillbirth rate per 1,000 population.....	2.15	1.75	1.53

Colon.—There were 851 children born in Colon (population 30,000), the birth rate being 28.37 per 1,000 of population. Of the total births 809 were born alive, and 42 were stillborn (rates 26.97 and 1.40 respectively). The general trend of birth rates in Colon during the past 15 years is shown in the following analysis of these rates by 5-year periods:

COLON BIRTH RATES BY 5-YEAR PERIODS

	1919-23	1924-28	1929-33
Total birth rate per 1,000 population.....	30.04	25.59	29.88
Live birth rate per 1,000 population.....	28.38	24.21	28.46
Stillbirth rate per 1,000 population.....	1.66	1.38	1.42

INFANT MORTALITY RATES

Infant mortality (absolute numbers and rates per 1,000 of live births) for the three groups of population involved were:

	Canal Zone			Panama	Colon
	White	Colored	Total		
Live births (absolute numbers).....	174	288	462	2,508	809
Deaths of children under one year of age (absolute numbers).....	6	29	35	295	93
Mortality rate per 1,000 of live births.....	34	101	76	118	115

INFANT MORTALITY RATES BY 5-YEAR PERIODS

5-year period	Canal Zone			Panama	Colon
	White	Colored	Average		
1919-1923.....	37.64	127.20	94.86	154.82	139.53
1924-1928.....	52.53	118.74	96.51	133.40	114.50
1929-1933.....	36.19	101.13	78.89	130.18	103.10

That considerable progress has been made during the past 15 years in reducing infant mortality rates in all elements of the population on the Isthmus is evident from the immediately preceding table.

PRINCIPAL CAUSES OF DEATH

The principal causes of death for the past five years, for the three groups of population involved, are set forth in the following tables:

SEVEN PRINCIPAL CAUSES OF DEATH FROM DISEASE, CANAL ZONE POPULATION, 1929-1933
(ABSOLUTE NUMBERS AND RATES PER 1,000)

	1929		1930		1931		1932		1933	
Population	38,825		39,467		40,565		42,070		42,851	
Disease	Number	Rate per 1,000	Number	Rate per 1,000	Number	Rate per 1,000	Number	Rate per 1,000	Number	Rate per 1,000
Pneumonia (broncho and lobar)	27	.695	30	.785	23	.567	14	.333	34	.793
Cancer (various organs)	16	.412	15	.405	15	.370	18	.428	26	.607
Tuberculosis (various organs)	34	.876	20	.507	19	.468	33	.784	21	.490
Diseases of the arteries					11	.271			15	.350
Organic diseases of the heart	15	.386	22	.557			20	.475	14	.327
Apoplexy							14	.333	12	.280
Nephritis (acute and chronic)	23	.592	21	.532	18	.444	10	.238	12	.280

SIX PRINCIPLE CAUSES OF DEATH FROM DISEASE, PANAMA CITY, 1929-1933
(ABSOLUTE NUMBERS AND RATES PER 1,000)

	1929		1930		1931		1932		1933	
Population	73,000		74,402		76,000		77,500		79,000	
Disease	Number	Rate per 1,000	Number	Rate per 1,000	Number	Rate per 1,000	Number	Rate per 1,000	Number	Rate per 1,000
Tuberculosis (various organs)	204	2.79	208	2.80	218	2.87	203	2.62	204	2.58
Pneumonia (broncho and lobar)	231	3.16	180	2.42	202	2.66	174	2.25	148	1.87
Diarrhea and enteritis, including colitis . .	148	2.03	98	1.32	135	1.78	104	1.34	140	1.77
Nephritis (acute and chronic)	114	1.56	113	1.52	64	.84	69	.89	82	1.04
Organic diseases of the heart	118	1.62	98	1.32	137	1.80	67	.86	67	.85
Cancer (various organs)	67	.92	59	.79	62	.82	69	.89	62	.78

SIX PRINCIPAL CAUSES OF DEATH FROM DISEASE, COLON, 1929-1933
(ABSOLUTE NUMBERS AND RATES PER 1,000)

[illegible]

Tuberculosis and the pneumonias continue to be leading causes of death in all three groups of the population, maintaining first and second places in the populations of Panama and Colon and first and third places in the Canal Zone population. The death rate from tuberculosis in the Canal Zone population is less than one-fifth of comparable rates in Panama and Colon; tuberculosis affects the colored alien population of the Canal Zone to a far greater extent than the white Americans. Deaths from degenerative conditions of the arteries (arterio-sclerosis and apoplexy) are continuing to occur with great frequency.

ACUTE TRANSMISSIBLE DISEASES

In the table appearing below is recorded the types of acute transmissible diseases which prevail in the Canal Zone and the cities of Panama and Colon, and the frequency with which they occur in these groups of the population (approximately 150,000).

CONTAGIOUS AND INFECTIOUS DISEASES—CASES AND DEATHS REPORTED TO THE CHIEF HEALTH OFFICER DURING THE CALENDAR YEAR 1933

Disease	Residence *									
	Panama		Colon		Canal Zone		Outside the Zone and terminal cities		Total	
	New cases	Deaths	New cases	Deaths	New cases	Deaths	New cases	Deaths	New cases	Deaths
Rabies.....							1	1	1	1
Chickenpox.....	125		24		48		16		213	
Diphtheria.....	73	5	12	1	22		14	1	121	7
Dysentery, amebic.....	78	9	6	2	1	1	164	10	249	22
Dysentery, bacillary (unclassified).....	1		1		3		1	1	6	1
Malaria.....	198	6	33	2	1,544	5	465	46	2,240	59
Measles.....	136	4	72		49		31		288	4
Meningitis, meningococcus.....	1	1							1	1
Mumps.....	1		2		8				11	
Pneumonia.....	(¹)	148	(¹)	51	(¹)	34	(¹)	50	(¹)	283
Poliomyelitis.....	1		3		2				6	
Relapsing fever.....					1		5		6	
Scarlet fever.....			1		4				5	
Trachoma.....	1								1	
Tuberculosis.....	(¹)	204	(¹)	105	(¹)	21	(¹)	41	(¹)	371
Typhoid fever.....	11	5	6		4	2	14	1	35	8
Paratyphoid fever.....										
Whooping cough.....	5		34		35		5		79	
Encephalitis lethargica.....					1		1		2	
Maritime quarantinable diseases.....										
Cholera.....										
Leprosy.....	1		1			7	4		6	7
Plague.....										
Smallpox.....										
Yellow fever.....										
Typhus fever.....	2								2	

* As many cases of pneumonia and tuberculosis are not reported unless death occurs, this report shows only the number of deaths from these two diseases.

¹ In cases where we are able to determine the place of infection fairly accurately, the place of infection instead of residence is shown. It is usually impossible to trace source of infection in amebic dysentery, but it is certain that very few cases are acquired in the sanitaried areas of the Canal Zone and the cities of Panama and Colon. A majority of cases of malaria shown for the Canal Zone are believed to have been acquired in unsanitaried areas.

VITAL STATISTICS, PANAMA CANAL EMPLOYEES

To interpret properly vital statistics relating to this group it is essential that one have knowledge of the conditions under which they are collected, their completeness, and other governing factors. These factors were outlined in the annual reports of the Health Department for 1930-1932 inclusive.

DEATH RATES, ALL CAUSES

The death rate for all employees (8.67 per 1,000 employees) was quite satisfactory (total deaths, 107; average number of employees for the year, 12,344) being the lowest since 1924 (7.23). Ninety-seven employees died of disease or at a rate of 7.86 per 1,000 employees, which represents the lowest rate attained since 1927 (7.82).

The death rate from disease in the colored employees of The Panama Canal was almost double that for white American employees, the reasons for which have been discussed in the annual reports of the Health Department for immediately preceding years.

Death rates in both white American and colored alien employees are gradually increasing, as is manifest in the following analysis of such rates by 5-year periods, for the past 20 years:

DEATH RATES OF EMPLOYEES, DISEASE ONLY, BY 5-YEAR PERIODS

	1914-1918	1919-1923	1924-1928	1929-1933
White employees.....	4.51	3.20	4.94	5.85
Colored employees.....	5.93	7.36	8.49	10.02

The principal causes of death from disease in 1933 were: Tuberculosis, 15; pneumonia, 10; diseases of arteries, 9; syphilis, 8; cancer, 8; nephritis, 7; apoplexy, 5.

ADMISSIONS TO HOSPITALS AND QUARTERS

The admission rate to hospitals and quarters was 845 per 1,000 employees. As noted last year, this rate has been increasing each year since 1926: 1926, 474; 1927, 502; 1928, 595; 1929, 602; 1930, 603; 1931, 705; 1932, 725; 1933, 845. This increase is attributable to gradual increase in the age of those employed (greater prevalence of diseases of the chronic degenerative type).

The admission rate per 1,000 to hospitals for disease by race (white and colored) has been as follows for the past five years:

ADMISSION RATE TO HOSPITALS PER 1,000 EMPLOYEES, BY RACE (WHITE AND COLORED)

	White	Colored
1929.....	273	154
1930.....	288	180
1931.....	310	187
1932.....	310	171
1933.....	330	175

PRINCIPAL CAUSES OF ADMISSION OF EMPLOYEES TO HOSPITALS

The diseases causing the greatest number of admissions of employees to hospitals during the past five years are incorporated in the following table:

EMPLOYEES, PRINCIPAL CAUSES OF ADMISSION TO HOSPITALS

Disease	1929		1930		1931		1932		1933	
	Total	Rate per 1,000	Total	Rate per 1,000	Total	Rate per 1,000	Total	Rate per 1,000	Total	Rate per 1,000
Malaria (including the few cases treated in quarters).....	337	21	410	26	276	19	177	14	328	26.57
Influenza.....							79	6	157	12.72
Diseases of pharynx and tonsils.....	184	11	136	9	153	10	97	8	146	11.83
Arteriosclerosis.....							124	10	120	9.72
Diseases of nasal fossae and annexa.....	153	9			270	19			99	8.02
Diseases of eyes and annexa.....	113	7			131	9	81	6	68	5.51
Acute abscess.....	109	7	106	7			77	6		
Gonococcus infection.....	121	7	130	8	106	7				
Syphilis.....			150	10	114	8				
Ankylostomiasis.....			113	7						

NONEFFECTIVE RATES, ALL CAUSES, EMPLOYEES

The noneffective rate for 1933 was 17.33 per 1,000 employees, the highest recorded since 1912 (construction days).

ADMISSION RATES, MALARIA, EMPLOYEES (HOSPITALS AND QUARTERS)

As malaria is a most important cause of noneffectiveness in this geographical area every effort is made properly to diagnose, treat, make record of, and determine the source of infection in all cases occurring in employees and other persons residing in the Canal Zone. Since 1906 careful records have been kept of the incidence of malaria in employees of The Panama Canal and its occurrence in this group is shown in the following table:

MALARIA CASES, EMPLOYEES ONLY
Absolute numbers and rates per 1,000 employees

Year	Average number employed	Number of cases	Rate per 1,000	Year	Average number employed	Number of cases	Rate per 1,000
1906	26,547	21,795	821	1920	20,673	401	19
1907	39,238	16,637	424	1921	14,389	214	15
1908	43,890	12,372	282	1922	10,447	176	17
1909	47,167	10,169	215	1923	10,976	212	19
1910	50,802	9,487	187	1924	11,625	190	16
1911	48,876	8,987	184	1925	12,180	330	27
1912	50,893	5,623	110	1926	12,732	179	14
1913	56,654	4,284	76	1927	13,561	145	11
1914	44,329	3,635	82	1928	14,260	203	14
1915	34,785	1,781	51	1929	16,193	337	21
1916	33,176	547	16	1930	15,524	410	26
1917	32,589	473	14	1931	14,597	276	19
1918	25,520	472	18	1932	12,621	177	14
1919	24,204	752	31	1933	12,344	328	27

The rate per 1,000 employees for 1933 was, in round numbers, 27 (actually 26.57), the highest since 1925 when a rate of 27.09 was attained. The malaria season for 1930, when a rate of 26.4 per 1,000 employees was recorded, is comparable in many respects to that of 1933.

Many factors, some known and some unknown, influence these rates from year to year. The various factors which may possibly influence the rate of prevalence of malaria are constantly under observation and the results of such observations are recorded in the annual reports of the Health Department to which those especially interested are referred. Marked annual variations in rates occur notwithstanding that continuously for many years the permanent drainage projects have been improved and extended and that extensive new drainage works have been installed.

The rate for 1933 (27) was in excess of those *usually* attained since 1916 (14 to 19 per 1,000) and was attributable to a number of factors among which the following may be cited:

(a) *Continuation of large construction projects beyond the limits of the so-called "sanitated areas."*—Construction projects of this nature were engaged in during 1925 (fortifications) and have been under way since 1929 (road construction on east and west sides of the Canal, Pacific side, and construction of Madden Dam).

(b) *Unusual prolongation of the rainy season.*—Ordinarily the rains begin to taper off in late November and by the middle or latter part of December the dry season is well under way and small collections of water suitable for anopheline breeding have dried up. In 1932 the rains continued until the latter part of December, *A. albimanus* breeding places beyond the limits of the sanitated areas were abundant until January 1933, and flights of *A. albimanus* into the sanitated areas still were occurring. As a result, the malaria rate for the month of January 1933 (annual basis) was 31.3 per 1,000 employees, which is much higher than is usual (January 1932, 15.2; 1931, 23.6; 1930, 20.3; 1929, 22.5; 1928, 6.7). Incidentally, it may be stated that the end of the rainy season in 1933 was quite similar to that of 1932, and as a result the malaria rates for January 1934—when this report is being written—are unusually high (28.0 per 1,000).

(c) *Dredging Division projects.*—In the early part of the dry season of 1933, the Dredging Division initiated a project including the construction of a dyke damming up the Rio Grande and its tributaries on the west side of the Canal just north of Balboa, with construction of a spillway at the upper end of the dyke. This area is to be used for dumping purposes in dredging silt from the Canal. Temporarily and

to enable the silt to settle solidly, it was necessary to bring the water up to a high level. This level could not be lowered until some time after the rainy season began and as a result a considerable amount of fresh water accumulated in the tributaries emptying into the Rio Grande River. The areas were patrolled regularly and as soon as breeding was found efforts were made to control it by oiling. It was not possible, however, markedly to lower the level of the water until about August or September. In the meantime the amount of breeding was very greatly curtailed. Temporary drainage works have been constructed in this area, the channel leading to the spillway has been lowered, and we anticipate no great trouble from it during the next rainy season. A second Dredging Division project (fill) on the Thatcher Highway in the vicinity of Farfan beach (west side of Canal, opposite Fort Amador and La Boca) has not, as yet, settled solidly and therefore is not adequately drained. The result was that during the latter part of the rainy season *A. albimanus* bred so abundantly as to necessitate dusting with paris green by airplane. The fill, which consists of silt from the Canal, is still too soft to permit construction of permanent drainage systems. Fortunately, the area in the vicinity of the Dredging Division projects has been depopulated and there is but little opportunity for malaria-transmitting mosquitoes to acquire infection except from individuals from the interior of Panama awaiting ferry connections at the ferry slip on the west side of the Canal at night. Sometimes the waiting period is a half-hour or more.

(d) *Aquatic flora, Gatun Lake*.—Observations during the past few years indicate that the amount of *A. albimanus* breeding in Gatun Lake is increasing rapidly due to changes in the aquatic flora. This problem was discussed in the Annual Report, Health Department, Panama Canal, for 1932 (pp. 43-45) and further details are incorporated elsewhere in this report. Evidence also in accumulating that the dispersal flights of *A. albimanus* always noted at the *beginning* of the rainy season, before rains are sufficient in volume to possibly result in breeding within the sanitized areas, are coming from the Gatun Lake area. *Anopheles* breeding in the lake during April, May, and June 1933, was materially greater than usual. Rains in sufficient volume to raise the lake level occurred much later than is usual and as a result the decline in the water level of the lake during the dry season was approximately five and two-thirds feet rather than the usual five feet. Consequently materially more extensive areas of matted decaying *Chara* were present on the surface of the lake than usually are found in its shallow parts. As these mats afford ideal

food and shelter for *Anopheles* breeding, the amount of breeding was much more extensive than usually is observed. There now appears to be no doubt that the dispersal flights of *Anopheles* observed throughout the Isthmus in May and June each year have their origin principally in the Gatun Lake region and that the prevailing conception that *A. albimanus* has a short flight range requires revision. The flight from the lake to the Atlantic terminal is not less than four miles, and to the Pacific about 12 miles or more.

(e) *Overhaul work on Panama Canal locks.*—Overhaul of the locks on the Pacific side was in progress from January 3 to June 9, 1933, during which period several hundred laborers were employed on both day and night shifts. Chronic carriers of malaria are common in such groups. During the latter stages of this overhaul when *Anopheles* flights were coming into the sanitized areas from the dredging projects on the west side of the Canal, in close proximity to the Pacific locks, and also from the lake area, abundant opportunity was offered the malaria transmitting mosquitoes to become infected through attacks on labor forces engaged in night work on the locks. During the latter part of May and the first part of June the Special Service Squadron of the Navy was at anchor in the basin off piers 15 and 16, Balboa, and for the first time in a number of years an unusually large number of cases of malaria were undoubtedly contracted on board the vessels.

(f) *Visits to the provincial districts of Panama.*—Until recent years but few sections of the provincial districts of the Republic of Panama were easily accessible except by coastwise steamers, and opportunities for employees and their families to visit these districts were greatly restricted. This barrier greatly reduced opportunity to acquire malaria. During the past 10 years the Public Works department of the Government of Panama has been actively engaged in the improvement and extension of existing highways and the construction of new ones. The result has been that in increasingly large numbers, the American employees of The Panama Canal are making automobile trips to the provincial districts, building cottages in various coastal areas for week-end and vacation use, and visiting with increasing frequency interesting localities in the coastal and other areas. Notwithstanding that employees are warned as to the possibility of contracting malaria during visits to nonsanitated areas, and are urged to safeguard themselves at night, most of them fail to do so. The result is that constantly increasing numbers of American employees and their families are contracting malaria through exposure in non-

sanitated areas. Conditions are such that it may be anticipated that the numbers of individuals acquiring malaria from this source will continue to increase.

DEATHS FROM MALARIA, EMPLOYEES

In 1933 two employees died of malaria, a rate of 0.16 per 1,000 employees. One of these deaths was that of an American employee who contracted a malignant tertian infection at New Gorgona beach, a coastal resort in the interior of Panama, had clinical symptoms for several days before reporting to a physician, and when seen by a Panama Canal physician was in a comatose condition. He was admitted to hospital immediately and died within three or four hours thereafter. The second fatal case was that of a Panamanian laborer employed at Madden Dam but living in one of the nearby nonsanitated native villages in the Republic of Panama. The patient was treated for an estivo-autumnal infection in February 1933, readmitted to hospital on April 3, 1933, and died of blackwater fever seven days later.

Annual death rates from malaria in employees since 1906 have been as is shown in the following table:

DEATHS FROM MALARIA AMONG EMPLOYEES ONLY
(Absolute numbers and rates per 1,000 employees)

Year	Average number employed	Number of deaths	Rate per 1,000	Year	Average number employed	Number of deaths	Rate per 1,000
1906	26,547	233	8.78	1920	20,673	3	.15
1907	39,238	154	3.92	1921	14,389	-----	-----
1908	43,890	73	1.66	1922	10,447	-----	-----
1909	47,167	52	1.10	1923	10,976	-----	-----
1910	50,802	50	.98	1924	11,625	2	.17
1911	48,876	47	.96	1925	12,180	-----	-----
1912	50,893	20	.39	1926	12,732	-----	-----
1913	56,654	21	.37	1927	13,561	-----	-----
1914	44,329	7	.16	1928	14,260	-----	-----
1915	34,785	8	.23	1929	16,193	1	.06
1916	33,176	2	.06	1930	15,524	-----	-----
1917	32,589	3	.09	1931	14,597	1	.07
1918	25,520	2	.08	1932	12,621	-----	-----
1919	24,204	2	.08	1933	12,344	2	.16

DIVISION OF HOSPITALS, DISPENSARIES, AND CHARITIES

The units comprising this division and the scope of their activities were outlined in the annual report for 1930. Brief reports of each of these units for 1933 follow:

GORGAS HOSPITAL

(Normal capacity, 880 beds)

Col. ORVILLE G. BROWN, Medical Corps, U.S. Army, Superintendent

In addition to the routine work of maintenance and repair of buildings and equipment by the hospital artisans during the year, the following major plant improvements were made:

1. The refrigerating plant and cold storage rooms of the hospital main kitchen were completely overhauled and repaired at a cost of \$3,350.

2. A new paint shop was constructed on a site adjacent to the present shops building at a cost of \$2,150. This activity was formerly located under one of the ward buildings and, together with the storage of inflammable material, constituted a fire menace which has now been removed.

3. The old, worn-out galvanized iron pipes in Section "B" are being replaced with a new system of modern brass piping. The installation is now about 75 percent complete. All necessary material for this work costing about \$1,000 is on hand but, for reasons of economy, the work is being accomplished only when the plumber is not otherwise engaged.

4. The interiors of kitchen, mess halls, isolation building and section "B" have been repainted throughout.

5. The parking site in rear of the Administration-Clinics building was enlarged at a cost of approximately \$900.

About \$6,500 was expended during the year for new equipment and replacements of worn-out or obsolete articles, of which about \$1,900 was devoted to new equipment for the hospital subsistence department.

Cases treated.—There were 11,621 admissions during the year, with a total of 149,292 patient days. An average of 12.46 days in hospital was spent by each patient under treatment as compared with 13.22 days per patient during 1932. The average number of beds occupied daily during the year was 409.02.

Surgical service.—There were 2,109 major operations (with 31 deaths) and 4,096 minor operations (with 2 deaths) performed during the year; 440 obstetrical cases were delivered, in which there were 8 twin births and 14 stillbirths; 9,779 patients received treatment in the out-patient service.

Medical service.—During the year, 6,216 patients were admitted to and treated in the medical wards. In addition to the hospital service, 8,675 patients were treated in the out-patient service.

Eye, ear, nose and throat service.—There were 9,691 visits to the out-patient department during the year; 1,610 operations were performed and 1,065 refractions were done.

Radiographic service.—There were 7,505 cases handled, for which 18,472 films of various sizes were used, and in which 991 fluoroscopic examinations were made.

Dental service.—There were 5,088 sittings during the year; 1,360 oral examinations, 1,950 teeth extracted, 265 complete and 991 partial dental X-ray examinations.

Physio-therapy service.—Treatments were given as follows: 128 radium, 2,431 roentgen, 1,481 electro-therapy, 3,750 thermo-therapy, 3,688 actino-therapy, 4,262 massage and exercise, and 3,240 hydro-therapy.

BOARD OF HEALTH LABORATORY

(Operated in connection with Gorgas Hospital)

Dr. L. B. BATES, Chief of Laboratory

Bacillus typhosus.—Recovered in blood culture from 13 individuals, from the urine specimen of one other, and from four other cases at autopsy. Six of these lived in Panama City, 3 in Colon, 3 were transients, 2 from Madden Dam, 2 from Canal Zone towns, and 2 from Canal Zone unsanitated areas.

Typhoid carriers.—On December 31, 1932, there was only one *B. typhosus* carrier, H.B., under sanitary surveillance. His stool specimens were examined 10 times during the year and found positive 3 times. One new temporary carrier was found during the year. H.B. was the only carrier under sanitary surveillance on December 31, 1933.

Chagas' disease (Schizotrypanum cruzi).—The first case of this disease to die in the Canal Zone or Republic of Panama, so far as is known, was autopsied on August 7, 1933. A brief summary of the case is as follows: Autopsy No. 10, 203, F.B., age 3 months, 11 days; male; black; residence, land license 1299 B.E., Chiva Chiva trail, Canal Zone; place of death, residence as given above; time on Isthmus, life; principal findings at autopsy: *Schizotrypanum cruzi* in myocardium, percarditis, otitis media, bronchopneumonia, right lower lobe, fatty metamorphosis of liver.

Snake bite.—The fourth autopsy at this laboratory on an individual dying of snake bite was performed on November 2, 1933. P.B., colored, laborer, Colombian, age 25 years, was bitten October 28, 1933, while obtaining a piece of sugar cane on Arinosa Farm, land license 765, Cristobal-West. He died November 2, 1933. The snake was killed by the victim but it was not recovered for identification. The history and autopsy findings were such that there was no doubt as to the cause of death.

Reports.—Approximately 38,900 laboratory examinations were made. The volume and character of the work is indicated in the following summaries:

Bacteriological, protozoal, and miscellaneous examinations.—Cultures of blood, 213; cultures of stools (typhoid-dysentery), 946; cultures of urine, 1,266; cultures from nose and throat, 1,576; cultures of sputum, 58; cultures of spinal fluid, 178; cultures of miscellaneous material (eye, pleural fluid, skin lesions, pus, bile, glands, autopsy tissues, etc.), 189; darkfield examinations, 81; staining and examination of smears (conjunctival, throat, urine, urethral, vaginal, sputum, etc.), 272; autogenous vaccines, 52; examination of lepers and leper suspects, 10; examination of urine for tuberculosis, 4; examination of spinal fluid for tuberculosis, 153; examination of feces for ova of parasites and protozoa, 103; blood films for malaria parasites, 8,018; bacteriological examinations of water, 743; bacteriological examinations of foodstuffs (cultures of milk, cream, ice cream, soft drinks, etc.), 756.

SEROLOGICAL EXAMINATIONS

Wassermann tests.....	18,307
Kahn tests.....	2,317
Agglutination tests.....	210
Positive with <i>B. typhosus</i> (<i>Eberthella typhi</i>).....	15
Positive with <i>B. proteus</i> X ₁₉ (<i>Proteus vulgaris</i>).....	5
Fragility tests.....	4
Blood typing for transfusion.....	59
Examination of blood for coagulation time.....	4

Analysis of Wassermann reactions.—There were 17,488 Wassermann tests performed on the blood of 13,201 persons. The results are summarized below:

TABLE SHOWING NUMBER OF PERSONS ON WHOM BLOOD WASSERMANN TESTS WERE MADE AT BOARD OF HEALTH LABORATORY AND RESULTS OF TESTS, 1933

Race, sex, and status	Individuals positive	Individuals negative	Total individuals tested	Percent of individuals positive
White, civil:				
Males.....	74	1,688	1,762	4.2
Females.....	29	592	621	4.6
Children.....	3	111	114	2.6
Total.....	106	2,391	2,497	4.2
White, military and naval:				
Soldiers, continental United States.....	119	3,953	4,072	2.9
Sailors, U.S. Navy.....	21	270	291	6.8
Total.....	140	4,223	4,363	3.2
Black and mulattoes:				
Males.....	435	2,711	3,146	13.8
Females.....	245	2,646	2,891	8.1
Children.....	14	230	244	5.7
Total.....	649	5,587	6,281	11.0
Chinese, males and females.....	4	56	60	6.6
Grand total.....	944	12,257	13,201	7.1

In addition, Wassermann tests were made on 819 spinal fluids taken from 612 individuals. The results are summarized below:

Individuals positive.....	53
Individuals negative.....	554
Total individuals tested.....	612
Percent of individuals positive.....	9.48

PATHOLOGICAL EXAMINATIONS

Autopsies.—There were 317 autopsies performed at the Board of Health laboratory. The more frequent causes of death were as follows:

Cause of death	Cases	Percent of autopsies
External causes.....	44	13.88
Tuberculosis (acute and chronic).....	29	9.14
Organic heart disease (acute and chronic).....	26	8.20
Pneumonia (broncho and lobar).....	25	7.88
Cancer.....	23	7.25
Syphilis (including 4 general paralysis).....	20	6.30
Cerebral hemorrhage.....	14	4.41
Bright's disease (acute and chronic nephritis).....	8	2.52

Bodies autopsied.—The annual report for 1930, page 54, contains a table showing the number of autopsies performed for the years 1904–1930 in certain diseases that but rarely come to autopsy in this area. The additions to this table for 1933 were as follows: Yellow fever, 0; beriberi, 0; ankylostomiasis, 0; tetanus, 0; infectious diseases of children, 1; plague, 0; smallpox, 0.

Five hundred and two bodies (not including 54 for storage only and 2 disinterred) passed through the laboratory; 317, or 63.14 percent were autopsied.

There were 27 malaria carriers found at autopsy.

There were 30 cases of syphilis found at autopsy.

Three cases autopsied, or 0.94 percent, showed intestinal parasites. *Ascaris lumbricoides* were found in each of the three cases; no search for ova made.

Laboratory examinations of wild and domestic animals.—Cultures from guinea pigs, rabbits, etc., 36; autopsies and histological examinations of cows, hogs, parrots, guinea pigs, rabbits, etc., 72; examinations of rats for plague, 2,855.

Preparation of tissues for examination (slides), 8,864.

Chemical analyses and examinations.—Alcohol, 7; beverages, 16; analyses of blood (nitrogen, urea, uric acid, creatinin, glucose, calcium, carbon dioxide, cholesterol, icterus index, phosphorus, sodium chloride, etc., 2,311; analyses of foodstuffs, drugs, and chemicals, 616; gastric analyses, 532; spinal fluid, 854; drugs, for identification, 23; toxicological examinations, 7; quantitative analyses of urine, 205.

In addition to the more highly technical laboratory work done in the Board of Health laboratory, the various sections of Gorgas Hospital have laboratories in which routine clinico-pathological work is done. The amount and character of work done by these units can be judged from the following summaries of their activities: Blood films examined for malaria, 13,898; red cell counts, 7,749; white cell counts, 9,127; differential counts, 9,030; coagulation time determination, 18; Van den Berg tests, 45; sickle cells, 51; qualitative analyses, urine, 24,406; phenolsulphonephthalein test urine, 66; urethral smears, 107; vaginal smears, 170; prostatic smears, 315; stools for ova of parasites, 10,182; sputum for tuberculosis, 1,804; cell count spinal fluids, 274; throat smears, 33; gastric contents for occult blood, 76.

UNDERTAKING DEPARTMENT

Bodies received (including 2 disinterred and 54 for storage).....	558
Bodies embalmed.....	82
Bodies cremated.....	104
Bodies buried on Isthmus.....	400
Bodies shipped from Isthmus (including 2 disinterred).....	55
Bodies buried at sea.....	1

COLON HOSPITAL

(Capacity, 135 beds)

Maj. DEAN F. WINN, Medical Corps, U.S. Army, Superintendent

This hospital has continued to function essentially as an emergency hospital although definitive treatment has been given to a wide range of cases. Individuals requiring certain special examinations, for which equipment is inadequate, those with venereal and contagious diseases, and mental and tuberculosis cases, were transferred to Gorgas Hospital.

The utilities department has been active in preserving the appearance of buildings and grounds and the upkeep of the various departments.

New construction.—The new nurses' quarters was completed and occupied in April. This is a 2-story reinforced concrete building with tiled roof, located just east of the main hospital building and facing Limon Bay. It affords commodious quarters for 16 nurses, including a suite of two rooms and bath for the chief nurse, and a common bath and lavatory for each two rooms. On the second floor there is an attractive lounge and on the first floor a reception hall, parlor and dining room. The kitchen and pantries are equipped but have not yet been used for a separate mess. Bedrooms and living rooms have been equipped with new furniture.

In August the old nurses' quarters was remodeled and occupied by the dispensary. The building is detached from the main hospital buildings. It houses the gold and maternity-pediatric clinic, the

silver clinic, laboratory, X-ray rooms, emergency dressing room, and pharmacy. In addition, rooms are provided for the officer of the day, dispensary office, and for temporary isolation. There are ample and convenient suites of offices, waiting rooms and examining rooms for the clinics. The laboratory is large and well lighted. The pharmacy is well arranged and has adequate storage space. The building is so arranged as to segregate completely white and colored patients.

In August a concrete and wood covered walk was constructed to connect the new dispensary with the hospital. This has proven a great advantage during the past rainy season.

In October the lower floor of the west wing of the main hospital building was remodeled. This section, formerly occupied by the dispensary, laboratory, X-ray department, and eye, ear, nose and throat department, has been converted into a ward containing eight private rooms and a 6-bed ward. The west end of this section was utilized for the construction of a suite of rooms for an eye, ear, nose and throat clinic. An operating room for this department was constructed by remodeling the existing porte cochère.

A filing room for storing clinical records, etc., has been equipped in the service building with steel shelving with a capacity of some 45,000 charts.

The shop and laundry facilities have been enlarged by the construction of a covered area with concrete floor and a large insulated drying room. This room is heated by an ingenious construction of the flue leading from the fire box over which emergency laundry is boiled. There is no expense for fuel as only waste material, such as old packing boxes, crates, etc. is used.

Movement of sick.—There were 4,160 admissions during the year with a total of 31,378 patient days, the average being 7.5 days per patient. Army personnel accounted for 8,305 patient days. There were 53,612 visits to the dispensary, including eye, ear, nose and throat and surgical clinics, a daily average of 147. There were 19,384 white patients and 34,228 colored patients. The average number of beds occupied daily was 86.

Surgical service.—There were 481 major operations. Included in these there were: Appendectomy, 166; hernia repair, 48; hemorrhoidectomy, 64; hepatic abscess, 3; intestinal obstruction, 8; perforated peptic ulcer, 5; hysterectomy, 17; cesarean section, 6; uterine suspension, 16; miscellaneous gynecological operations, 79. There were 510 minor operations; 177 fractures were treated.

A number of new items of equipment were added. Among these were a new electric dressing sterilizer, gas-oxygen anesthesia outfit, and electric cautery.

Obstetrical service.—There were 368 deliveries during the year. There were 17 sets of twins, 11 forceps deliveries, and 6 cesarean sections. An active well-conducted prenatal clinic is maintained.

Medical service.—The general scope of the work has been satisfactory in both volume and variety. No serious epidemics occurred during the year.

Eye, ear, nose and throat service.—This service was established in the latter part of 1932. It has grown to be one of the largest and most important departments of the hospital and has filled a very definite need for the population on the Atlantic side of the Isthmus. During 1933, 1,176 operations were performed; 9,503 treatments were recorded for hospital patients and 5,713 treatments were given out-patients. Refractions numbered 698. The following abbreviated statistical report of operations is submitted as an indication of the scope of the work performed: Mastoidectomy, 8; cataract operations, 20; pterygium transplant, 94; trephine, 6; enucleation, 5; foreign body (cornea), 33; plastic of eye, 19; correction of ptosis, 3; correction of squint, 12; submucous resection, 139; sinusotomy, 40; radical antrum, 7; radical frontal, 11; ethmoidectomy, 10; plastic (nose), 8; plastic (ear), 4; cartilage inlay (face), 1; miscellaneous, 756.

X-ray department.—There were 1,349 examinations made during the year. New and modern equipment was installed upon completion of the new dispensary building so that this department is now able to do a more satisfactory and varied type of work than formerly.

Laboratory.—Only routine work is done, serological and pathological work being performed by the Board of Health laboratory, Ancon, C.Z. The laboratory in the new dispensary building is well lighted and adequate space for expansion is provided.

Dispensary.—The Colon dispensary is conducted as a department of Colon Hospital. The combined gold and maternity-pediatric clinic is under the direction of the district physician who is also in general charge of the entire dispensary. Both white and colored patients are cared for in this clinic but the hours and waiting and examining rooms are so arranged as to segregate the races. The silver clinic is conducted by members of the hospital staff assigned in rotation.

COROZAL HOSPITAL

(Capacity, 550 patients)

Maj. F. H. DIXON, Medical Corps, U.S. Army, Superintendent

Purpose.—Until recently this institution served to accomodate the insane of the Canal Zone and of the Republic of Panama, the latter

class of patients being cared for at the expense of the Republic at a fixed rate of 75 cents per day. However, during June and July of 1933, all of the latter class, totaling 592 patients were transferred to the Retiro Matias Hernandez, an asylum located on the Sabanas road about five miles from Panama City, and erected during recent years for this purpose. American or alien employees of the Panama Canal, disabled by reason of injuries or chronic diseases, or enfeebled by advanced age, who desire to enter the institution, are cared for in Corozal Hospital.

As a result of the exodus of this great number of patients, six of the old wooden structures were sold and torn down, and all male and female insane patients consolidated in the new 2-story concrete building completed in November 1931, while the cripples and chronic patients are now quartered in the concrete structure formerly used as a ward for insane women patients. To make these buildings suitable for this purpose certain alterations were necessary, such as removal of sliding doors and screens, constructions of new doorways, installation of handrails along stairways, the erection of new walls and partitions to separate the male from the female patients, and arranging space for dining halls. These changes were all made by hospital personnel under the supervision of the general mechanic. The concentration of all insane patients in one building promotes efficiency and also makes it possible to operate with more limited personnel. At the same time, removal of the six wooden structures which were no longer needed reduces the cost of maintenance for painting and repairs. One building, ward "B," also of wood construction, being of more recent origin, was retained to provide for emergencies and will accommodate about 160 patients.

A new cemetery tool shed to replace the old building, which was too small for present requirements and in bad state of repair, is being erected by hospital labor under the supervision of the general mechanic, at an estimated cost of \$350. This tool shed is more centrally located than the old building, since the cemetery area has been enlarged and new roads constructed in the 40-acre plot recently added. Considerable work remains to be done in connection with the enlargement of the cemetery, and it will be necessary to relocate the boundary fence, erect additional gates and construct paths through the new section.

Routine painting and repairs to woodwork, steel doors, window frames, plumbing, boiler and steam lines, and filling and grading of hospital grounds, have been performed by hospital artisans with the help of patients.

Insane patients.—The census on December 31, 1933, was 178, as compared with 748 at the end of the previous year. The number admitted was 247, as compared with 338 for 1932. There were 782 discharges and 31 deaths. There were no suicides, but one death resulted due to altercation between two patients.

Other patients.—There were, on December 31, 73 black and 6 white chronically ill or crippled inmates (not insane), as compared with 59 black and 5 white of this class at the beginning of the year. Twenty-four were carried on the pay rolls, employed as broom-makers, janitor, and laborers. The broom-makers manufactured approximately 260 brooms per week.

Recreation.—Because of the reduction in the number of patients and the limited personnel, the weekly moving picture shows were discontinued in July 1933. However, band concerts through the courtesy of the 11th Engineers Band, Corozal, are provided about every other week, unless Army maneuvers or other duties prevent. Refreshments in the form of candies, cookies, cigarettes, tobacco, etc., are distributed among the chronic and insane patients, the latter receiving this distribution in lieu of cash in case they are employed on the patients' pay roll. Church services were conducted once a week for the Catholic and Protestant patients. However, in view of the limited number of Catholics remaining since the transfer of patients to Matias Hernandez asylum, such services have been discontinued since July 1933.

Treatment.—Intensive specific treatment was given to patients suffering from syphilitic psychoses. Three hundred and seventy-three doses of arsphenamin were administered intravenously, and 219 lumbar punctures were made. At the end of the year there were 29 patients suffering from neuro-syphilis in some form; 25 of these were males and 4 females.

Occupational therapy.—Because of the transfer of approximately 77 percent of our insane patients, the very limited number of remaining patients and the need for economy, the occupational ward was discontinued and the services of the female nurse formerly in charge dispensed with.

In addition to the male patients engaged in the occupational ward there were others employed in agricultural activities. The value of the produce taken from the patients' garden for hospital consumption amounted to \$1,209. The more vigorous females were assigned to tasks in the laundry, sewing room, or salvage department. As a result of these various undertakings, between 75 and 80 percent of the patients are engaged in some form of work. All of the hospital laundering, with the exception of some bed sheets and pillowcases, and all of the nurses' uniforms, was done by the patients.

Farm.—Repairs to fences were made, and pastures cleared of brush during the dry season by cutting and burning pasture. There were 24 cripples employed on the farm and hospital at the close of the year as compared with 22 at the beginning of the year. These men are employed in the garden, piggery, steam plant, cemetery, etc. Seven (including two chronic patients) are tending plots of land in the farm reservation, which they cultivate as gardens and they are paid on an actual production basis.

PALO SECO LEPER COLONY

Dr. EZRA HURWITZ, Superintendent

There were 106 patients at the Leper Colony on January 1, 1933. Seven new cases were admitted, seven patients died during the year; none were paroled and none absconded. At the close of the year 106 patients remained, 91 for the Republic of Panama and 15 for the Canal Zone.

Of the 7 deaths of lepers, all were autopsied at the Board of Health laboratory and, in accordance with the preference of the Manual of Joint Causes of Death of the Bureau of the Census, the cause of death was recorded as leprosy in all cases; the contributing causes of death were as follows: One chronic glomerulonephritis; 1 amyloid disease of the kidneys; 1 abscess, lower lobe, left lung, ruptured into pleura; 1 pulmonary tuberculosis; tuberculosis of the vertebral column; 1 peptic ulcer; perforated duodenum; peritonitis, acute, generalized; in 2 cases no lesions other than those of leprosy were found.

Intramuscular administration of the iodized esters of *Hydnocarpus wightiana* was continued as the routine treatment. Injections were given twice weekly, and although attendance was not compulsory, all patients except six reported with regularity for treatment.

In April the Municipal Division completed installation of the water line from Balboa to the colony. The well, which has been the principal source of water (highly mineralized), but had never given a sufficient supply during the dry season, has not been abandoned, but will be kept in condition for use in emergency.

In June, electric equipment consisting of two ranges (replacing the unsatisfactory oil-burning ranges), one stock pot and one water heater were installed in the kitchen.

In July a graded road with a light surface of crushed stone was opened between Thatcher Highway and Palo Seco; and the launch Palo Seco II which had been used for transportation until then was turned over to the Section of Surveys. The colony was provided with an ambulance, which is adequate for the present needs of the colony.

A number of patients were permitted to visit relatives in Panama City, always attended by an officer of the Panama Health office, and one patient, with the permission of the Panamanian authorities was permitted to visit her aged mother in Los Santos.

It would be desirable to separate patients in their quarters according to the severity of infection. Under present conditions this is practically impossible, as patients in the same approximate stage of infections are often temperamentally unfit to associate peacefully. In planning future building at the colony, arrangement should be made for each patient to be quartered in a separate room.

With profits accruing out of the resale storeroom, the colony purchased a new projector for talking motion pictures. Three motion picture agencies in Panama (Metro-Goldwyn-Mayer, Paramount, and Radio-Keith-Orpheum) each furnish the colony with one show weekly, without charge. The excellent pictures shown have been a great source of pleasure and contentment to the patients.

The Palo Seco band received as gifts a saxophone from Mr. Danner, of the American Mission to Lepers, and a clarinet from Dr. Barbour of Boston, Mass. Other donations received, were from Woman's Auxiliary of Gatun Union Church, \$10; Cristobal Women's Club, \$5; and gifts of clothing to each patient were given through Father Lawler of St. Mary's Church.

The allowances made to the patients during the year was \$1,896; \$1,164.33 worth of farm produce was bought from 29 patients; 54 patients were employed in the colony and earned \$3,110.73.

DIVISION OF SANITATION

The end of the dry season of 1933 was notable for an apparently unusually large invasion of anopheline mosquitoes into the sanitated areas, the probable reasons for which have been discussed elsewhere in this report. The continued growth and spread of *Chara* and other aquatic plants in Gatun Lake contributed largely to the increase in the numbers of anophelines.

In the Rio Grande hydraulic fill west of the Canal near Balboa, a large drainage channel made in the soft mud by dynamite lowered the surface of the waters somewhat, but this area cannot be brought under satisfactory control until the whole area of more than a square mile is filled to an elevation of several feet higher, or an additional spillway, with its sill at a considerably lower elevation, is built. The Rio Grande fill and spillway at first impounded a large lake of brackish water with no outlet at low stages, simulating quite nearly the large brackish swamps of the Atlantic side, and here, for the first time in

our experience, *Anopheles tarsimaculatus* was found breeding on the Pacific side of the Canal Zone. Adults were taken on the screens of nearby quarters and at Fort Clayton, two miles away.

The large hydraulic fill in the Thatcher Highway area developed, as is customary in such fills, myriads of deep cracks during the dry season, and when the rains and run-off from the hills had filled these with water they became prolific in breeding of *Anopheles albimanus* and *Aedes taeniorhynchus* larvae. It was necessary on two occasions (November 20 and December 21) to dust this fill with paris green from an airplane.¹ A five percent mixture of paris green with pulverized clay was sufficient to destroy most of the *Anopheles*.

It was not necessary to use the airplanes in dusting the swamps at Old Panama during the rainy season of 1933. Straightening of the channel of the Rio Matias Hernandez through the western part of the swamp improved the drainage of this part considerably and the fact that cattle were not pastured in it as much as usual gave the swamp vegetation a chance to grow and shade the area. Breeding occurred only in small patches and was controlled by hand blowers dusting with a one percent paris green mixture.

The new golf club building in the Sabanas northeast of Panama City has proved very popular as an evening resort for its members and guests, therefore it was necessary to improve the drainage of this area to prevent mosquito breeding. The open streams were trained and paved with 14-inch wide hemicylindrical precast concrete sections, 4,523 linear feet being so installed. At acute bends the banks of the streams were rip-rapped with large stones. Also, 903 feet of subsoil tile were installed there. The golf club furnished part of the material and the greater part of the labor for this undertaking.

Experiments were begun with mechanical and animal traps to catch adult mosquitoes, but the work has not sufficiently progressed to report results as yet.

Malaria surveys of employees of the Canal and contractors engaged in large Canal undertakings in unsanitated areas were continued throughout the year. All persons found carrying the plasmodia of malaria were treated in an effort to reduce the number of carriers and clinical cases. It is believed that the results have justified the effort and expense.

The enlarged new open grate incinerator at Summit, for the destruction of the garbage of Ancon, Balboa, and Panama City, was placed in operation in April 1933. While during the dry season, with brisk north winds, the garbage burns almost completely in 24 hours, it was

¹ A subsequent dusting was necessary on January 9, 1934.

found that during the season of rains and variable winds it required, at times, nearly 72 hours for complete incineration. Therefore the incinerator was trebled in size over its first design, allowing grate capacity for 3 days collection in serial order on the grate. It disposes of about 300 cubic yards of mixed garbage and rubbish, including large dead animals, daily. Because of its location in the open country 12 miles from Panama, the smoke causes little or no nuisance. The garbage is unloaded from a ramp near the city by motor dump trucks, into chain cradles in specially constructed steel railroad cars and hauled to the grate by rail. It is unloaded from the cars by a crawler type tractor drawing out the chain cradles and emptying them on the grate, 15 to 20 cubic yards at a pull.

The grates of the incinerator are constructed of old railroad rails cut in half-lengths, and no trouble has been experienced from buckling of the rails as no fire or accumulation of ashes is permitted beneath the grates. Comparatively very little fuel is used to burn the garbage. The fires are started by small piles of scrap^a wood, old railroad ties, and rubber tires laid at intervals on the grates before the garbage is placed upon it. Once started, the fires burn through the pile, with a single stoker on hand to keep pulling unburned garbage over into the burning piles. Wet manure from dairy and horse barns proved most difficult to burn, the principal feed here, even in city stables, being green grass brought in from the country. This difficulty was overcome by dumping all manure into the sea, over a high sea wall, where the tides effectually dispose of it without nuisance.

Notwithstanding that the breeding of various species of flies apparently was under careful control at the garbage disposal dump in Panama City during the last three years of its operation, the change in method of disposal—discontinuance of disposal dump and removal of all garbage from the city and its incineration at Summit—has resulted in a still further reduction in number of flies in Panama, more particularly those species which breed in decaying animal matter.

(See pages 18 to 21 for additional information on anti-malaria work.)

REPORT OF THE HEALTH OFFICER—PANAMA

Dr. JESSIE L. BYRD, Health Officer

Dairy farm inspections.—All dairy cattle are tested once a year for T.B. reactors; any reactors found are either slaughtered or isolated from the dairy herds. Three thousand one hundred fifty-two dairy cattle were tested for T.B. during 1933, the intradermal test being used, and 264 reacted positively to the test. Ninety-one of these

reactors were from two farms, the owners of which have never given this department any cooperation in the prompt handling or disposal of their reactors. The other 18 dairy farms are practically free from T.B. at present. All dairymen are improving their stock by the importation of pure-blooded Holstein, Guernsey or Jersey cattle, and by crossing them with the native stock. Most of the dairy farms now have dipping vats and their cattle are almost free from ticks.

Milk inspection.—This work starts at the dairy farms, where the inspector makes frequent checks on the sanitation of equipment, methods of handling, technique of milking, etc. He collects samples at the dairy, at the pasteurization plant, in stores and from delivery trucks. All milk sold retail in Panama is pasteurized and bottled at one of 4 pasteurization plants. While the consumption of fresh milk in Panama City is increasing, and will, no doubt, continue to increase somewhat, it is my opinion that fresh milk will never become a national drink or food here to the extent that it is in other countries. The present supply (about 1,300 gallons per day) is more than adequate to supply the demand (about 5,500 bottles or 1,100 gallons). Only about five percent of the population can afford to purchase fresh milk and have iceboxes or refrigerators in which to keep it. Milk usually is sold in bottles containing one-fifth of a gallon. The present retail price is 15 cents a fifth-bottle (75 cents a gallon). Five years ago the the retail price was \$1 a gallon. The fresh milk on sale in Panama City is considered grade "A" pasteurized milk. However, there are one or two dairy farms which could improve their product and they will no doubt do so when the new milk ordinance goes into effect. It will allow us to grade raw as well as pasteurized milk, and in that way will prevent the mixture of good and poor grade milk as sometimes happens now.

Public health.—There have been no epidemics during the year. The communicable disease rate remains about the same as last year, except for amebic dysentery which shows a great increase during the past seven months as shown by the following number of cases reported: June, 14; July, 11; August, 26; September, 23; October, 25; November, 41; December, 58.

The reason for this sudden increase in amebic dysentery is unknown, but is probably due to better reporting on the part of Santo Tomas Hospital physicians. The infection in more than two-thirds of these cases was definitely traced to places in the interior of Panama, where a majority of the patients resided. The deaths of residents of Panama from amebic dysentery have been as follows for the past five years: 1929, 3; 1930, 1; 1931, 3; 1932, 2; 1933, 9.

Garbage collection and disposal, and street cleaning.—Garbage is collected nightly in Panama City, Ancon, Balboa, and Albrook Field, an area of three square miles, and a population of approximately 91,500 people, with the following equipment and force: One sanitary inspector (American); 2 foremen; 30 laborers; 7 trucks of $1\frac{1}{2}$ tons each (one of which collects rubbish and manure during the day) which average a little more than 8 loads daily.

The following shows the gross cost of garbage collection, and of disposal of garbage and rubbish from Panama City, Ancon, Balboa, Albrook Field, and Fort Amador, and of street cleaning in Panama City during the year. The tonnage shown is considered fairly accurate, and was arrived at by the actual measurement of the trucks with and without top-load. The six night trucks average three cubic yards each without built-up sides and without top-load, and five and one-half cubic yards each with built-up sides and top-load. These figures check almost exactly with the yardage of the garbage cars which is known to be 75 cubic yards each. Three cubic yards are figured as weighing one ton:

Garbage and rubbish collection, Panama City:

Collected by Health Department.....	tons..	29,445
Cost of collection—		
Total.....		\$39,962.40
Per ton.....		1.36
Per capita (79,000 population).....		.51

Garbage collection, Ancon, Balboa, Quarry Heights, Albrook Field: (Rubbish in these places not collected by Health Department):

Collected by Health Department.....	tons..	6,293
Cost of collection—		
Total.....		\$16,350.41
Per ton.....		2.60
Per capita (10,700).....		1.53

Garbage disposal, Panama City, Ancon, Balboa, Quarry Heights, Albrook Field, Fort Amador:

Collected by Health Department.....	tons..	32,983
Delivered to railroad garbage cars by others.....	tons..	3,032
Total garbage disposed of.....	tons..	36,015
Cost of disposal—		
Total.....		\$25,236.72
Per ton.....		.70
Per capita (91,500 population).....		.28

Rubbish disposal, Panama City, Ancon, Balboa:

Manure dumped over sea wall (October to December).....	tons..	155
Delivered at dump by Health Department.....	tons..	2,600
Delivered at dump by others.....	tons..	12,000
Total.....	tons..	14,755

Rubbish disposal, Panama City, Ancon, Balboa—continued:

Cost of disposal (salary of one man and maintenance of road)—

Total.....	\$988.00
Per ton.....	.07
Per capita (88,700 population).....	.01

STREET CLEANING—PANAMA

Total cost of street cleaning.....	\$22,771.63
Cost of street cleaning per capita (79,000).....	.29

In April 1933, the enlarged open-grate incinerator at Summit was put into operation, and since then all garbage from the Pacific terminus has been disposed of there; also, all manure from the city of Panama was disposed of there from April until October 1933, since which time it has been dumped over the sea wall on the edge of Panama City, without creating a nuisance.

The low cost of collecting garbage is due to the system in effect, which may be described briefly, as follows: The laborers are divided into what is known here as "pullers or placers," loaders and replacers. The puller precedes the trucks by about two hours in residential districts and collects the garbage from each household can, placing it into a large galvanized tub; when the tub is full he empties it into a regulation garbage can and places the full can alongside the street. The truck has a driver and three loaders; two of the loaders ride on the running board of the truck and when the truck stops for a can there is *no delay*; the can is passed quickly to the loader on the truck who empties it and passes it back, all in one motion. In the business and tenement sections the pullers precede the trucks only about 30 minutes to one hour so that cans will not remain on sidewalks to be upset by mischievous boys and by dogs. This method permits rapid loading and reduces truck hours to the minimum. The average round-trip time per truck in the residential districts of Ancon and Balboa is about 60 minutes; this time is reduced to 50 minutes in Panama City where the density of population is much greater.

REPORT OF THE HEALTH OFFICER—CRISTOBAL-COLON

Dr. JESSE C. ELLINGTON, Health Officer

General.—There were no epidemics during the year and the communicable disease report compares favorably with reports for previous years. The general death rate of 16.27 is only slightly higher than the five-year average. The infant mortality rate of 114.96 is much higher than the rate for 1932, but only slightly higher than the average for the five years 1927–1931. The infant mortality rate and the tuberculosis death rate of 3.5 no doubt reflect the poor economic conditions prevailing in Colon throughout the year.

Mt. Hope cemetery.—One thousand forty (1,040) square yards of new road were constructed in the cemetery during the year by Municipal Engineering Division forces, which greatly facilitates the handling of funeral processions. There were 493 burials, the receipts amounting to \$3,413. Miscellaneous receipts amounted to \$272.75.

Street cleaning, garbage collection and disposal.—No changes were made in the methods of handling this work and the results were entirely satisfactory. Burning and burying of garbage and rubbish at the dump was carried out without fly breeding or other sanitary nuisances.

Garbage and rubbish collection, Colon:

Collected by Health Department.....	tons..	17,916
Cost of collection—		
Total.....		\$26,030.20
Per ton.....		1.46
Per capita (30,000 population).....		.87

Garbage collection, Cristobal and Mount Hope:

Collected by Health Department.....	tons..	3,014
Cost of collection—		
Total.....		\$5,570.34
Per ton.....		1.84
Per capita (6,247 population).....		.89

Garbage disposal, Colon, Cristobal, Mount Hope, France Field:

Delivered by Health Department.....	tons..	18,107
Delivered by others.....	tons..	254
Total.....	tons..	18,361
Cost of disposal—		
Total.....		\$11,557.84
Per ton.....		.63
Per capita (37,047 population).....		.31

Rubbish disposal, Colon, Cristobal, and Mount Hope:

Delivered by Health Department.....	tons..	2,823
Delivered by others.....	tons..	3,805
Total.....	tons..	6,628
Cost of disposal—		
Total.....		\$650.00
Per ton.....		.10
Per capita (36,247 population).....		.02

Street cleaning, Colon (not including New Cristobal):

Total cost.....		\$14,611.06
Cost of street cleaning per capita (28,000 population).....		.52

Free clinic—Following is report of cases treated and other work done during the year:

Eye, ear, nose and throat (clinic visits).....	506
Prenatal and postnatal (clinic visits).....	1,897
Babies (clinic visits).....	2,230
Dental (referred to Dr. Doten).....	20
Formulae prepared.....	8,741
Medical and surgical (clinic visits).....	131
Referred to hospitals.....	125
Other work by district nurse:	
Home visits.....	2,973
Vaccinations.....	3,109
Specimens to laboratory.....	454

Mosquito and rat work.—Very few mosquito complaints were registered during the year, except during seasonal flights from points outside the city. Daily catches were made as an index.

Rat catching to serve as an index was also carried out throughout the year and 4,704 traps were set, 1,152 rats caught, and 386 rats sent to the laboratory for examination.

Inspection of food establishments.—Two hundred and three permits were issued to restaurants, hotels, dairies, milk plants, bottling plants, soft drink places, etc., and 48 permits were subsequently canceled due to establishments going out of business. Inspections were made as follows: Bakeries, 666; dairies, 196; milk plants, 421; bottling plants, 355; markets, 1,466; ice cream plants, 357; restaurants, 2,233; soft drink places, 2,119. Samples of soft drinks, milk, ice cream, caustic solutions and foodstuffs to the number of 592 were sent to the laboratory.

Dairies were maintained in good condition and 1,979 cattle were tested for tuberculosis. Five reactors were slaughtered.

Animal quarantine inspections.—Inspections were made as follows: Cattle, 186; mules, 120; horses, 58; dogs, 18; monkeys, 15; guinea pigs, 10; circus animals, 10; miscellaneous, 21.

REPORT OF THE DIVISION OF QUARANTINE AND IMMIGRATION

Dr. CHARLES V. AKIN, Surgeon, U.S.P.H.S., Chief Quarantine Officer

The activities of the division show an increase over the year 1932, most of the increase taking place during the closing months of the year.

No significant changes in quarantine procedure took place, but the closing month of 1933 saw a general tightening up in immigration requirements. Every effort will be made in the future to restrict

admissions to the Canal Zone and to the Republic of Panama to only such persons as give every guarantee that they will not become public charges.

In addition to the duties incident to quarantine and immigration procedure the Chief Quarantine Officer is assisting in revising the sanitary code for the cities of Panama and Colon and in promoting personal hygiene activities among the civilian employees of the Canal, with particular reference to school groups.

The Chief Quarantine Officer also acts for the United States Public Health Service as medical officer in charge of medical relief for merchant seamen and other beneficiaries of the service.

The following table summarizes the activities for the year:

	Balboa	Cristobal	Total
Vessels boarded and passed.....	2,426	3,222	5,648
Vessels granted pratique by radio.....	36	42	78
Total.....	2,462	3,264	5,726
Crew passed for quarantine.....	123,571	229,006	352,577
Passengers passed for quarantine.....	37,077	86,905	123,982
Total.....	160,648	315,911	476,559
Airplanes inspected and passed.....	30	462	492
Crew of airplanes inspected and passed.....	61	1,470	1,531
Passengers of airplanes inspected and passed.....	68	1,861	1,929
Total.....	129	3,331	3,460
Vessels detained in quarantine.....	2	.....	2
Crew and passengers detained aboard ship for quarantine.....	735	.....	735
Persons admitted to station on account immigration laws.....	985	.....	985
Number of detention days for the year.....	5,698	.....	5,698
Persons held for investigation and released.....	8	42	50
Persons deported under immigration laws.....	438	490	928
Supplementary sanitary inspection of vessels.....	745	2,740	3,485
Vessels fumigated.....	13	26	39
Box cars fumigated.....	91	34	125
Deratization exemption inspections.....	6	4	10
<i>Revenues</i>			
Subsistence.....	\$8,849.45	.....	\$8,849.45
Night boarding of vessels.....	2,550.00	3,850.00	6,400.00
Fumigation of vessels.....	890.50	1,205.10	2,095.60
Fumigation of box cars.....	106.21	46.25	152.46
Deratization exemption inspections.....	120.00	50.00	170.00
Rations issued.....	10,978	.....	10,978
Rats recovered after fumigation of vessels.....	7	114	121

REPORT OF THE DISTRICT NURSE FOR THE PACIFIC DISTRICT

Number of baby clinics maintained.....	6
Average number of babies enrolled per month.....	578
Average number of babies visiting clinics per month.....	239

Total number of visits to clinics.....	4,553
Number of visits to cases of tuberculosis.....	56
Total number of house visits.....	960

Red Cross home hygiene classes were continued weekly at La Boca and Red Tank until the course was finished. At La Boca, 15 girls took the final test on April 27, and 14 received certificates from Washington on June 24. At Red Tank, 11 girls took the final test on June 30, and 7 received certificates on August 18 from Washington.

The district nurse assisted with the examination of school children on the Pacific side, and with the tuberculin tests which were started late in the year and are still underway.

In December the baby clinic at Ancon was temporarily discontinued and a baby clinic started at the Panama Health Office, Panama City, at the request of the mothers in Panama who had been coming to Ancon.

GENERAL TABLES

TABLE 1.—DISCHARGES FROM HOSPITALS, DEATHS, AND NONEFFECTIVE RATES
FOR EMPLOYEES

ABSOLUTE NUMBERS

	Average number of employees	Discharges from and deaths in hospitals			Total deaths			Days treatment in hospitals and quarters	Average number sick per day in hospitals and quarters
		Total	Disease	External causes	Total	Disease	External causes		
Year 1933:									
White.....	3,244	1,153	1,070	83	16	15	1	23,072	63.21
Black.....	9,100	1,873	1,593	280	91	82	9	55,026	150.76
Total.....	12,344	3,026	2,663	363	107	97	10	78,098	213.97
Year 1932:									
White.....	3,387	1,113	1,050	63	17	15	2	21,151	57.79
Black.....	9,234	1,821	1,583	238	96	87	9	57,666	157.56
Total.....	12,621	2,934	2,633	301	113	102	11	78,817	215.35

ANNUAL RATE PER 1,000 EMPLOYEES

Year 1933:									
White.....	355.43	329.84	25.59	4.93	4.62	.31		19.49	
Black.....	205.93	175.16	30.77	10.00	9.01	.99		16.57	
Total.....	245.14	215.73	29.41	8.67	7.86	.81		17.33	
Year 1932:									
White.....	328.61	310.01	18.60	5.02	4.43	.59		17.06	
Black.....	197.21	171.43	25.77	10.40	9.42	.98		17.06	
Total.....	232.47	208.62	23.85	8.95	8.08	.87		17.06	

TABLE 3.—DEATHS AND DEATH RATES OF RESIDENTS OF THE CANAL ZONE AND THE CITIES OF PANAMA AND COLON

Place	Popula- tion	Deaths			Annual rate per 1,000 population		
		Total	Disease	External causes	Total	Disease	External causes
Year 1933:							
Panama.....	79,000	1,181	1,130	51	14.95	14.30	.64
Colon.....	30,000	488	469	19	16.27	15.63	.63
Canal Zone.....	42,851	305	271	34	7.12	6.32	.80
Total.....	151,851	1,974	1,870	104	13.00	12.31	.69
Year 1932:							
Panama.....	77,500	1,232	1,171	61	15.90	15.11	.79
Colon.....	30,000	433	405	28	14.43	13.50	.93
Canal Zone.....	42,070	307	272	35	7.30	6.47	.83
Total.....	149,570	1,972	1,848	124	13.18	12.35	.83

Rheumatic diseases, nutritional diseases, diseases of the endocrine glands and other general diseases

Acute rheumatic fever.....	2	2	2	2	1	1	1	1	1	4	2	2	1
Diabetes mellitus.....	11	4	7	2	1	1	1	1	1	1	1	1	1
Scurvy.....	1	1	1	1	1	1	1	1	1	1	1	1	1
Pellagra.....	1	1	1	1	1	1	1	1	1	1	1	1	1
Rickets.....	1	1	1	1	1	1	1	1	1	1	1	1	1
Myxedema and cretinism.....	1	1	1	1	1	1	1	1	1	1	1	1	1
Diseases of the thymus gland.....	1	1	1	1	1	1	1	1	1	1	1	1	1
Other general diseases.....	1	1	1	1	1	1	1	1	1	1	1	1	1

Diseases of the blood and blood-making organs

Primary purpura.....	1	1	2	1	1	1	1	1	1	1	1	1	1
Other anemias.....	2	2	2	2	1	1	1	1	1	1	1	1	1
Pseudoleukemias (Hodgkin's disease).....	1	1	1	1	1	1	1	1	1	1	1	1	1
Diseases of the spleen.....	3	3	3	3	1	1	1	1	1	1	1	1	1

Diseases of the nervous system and of the organs of special sense

Encephalitis (nonepidemic).....	1	1	1	1	1	1	1	1	1	1	1	1	1
Simple meningitis.....	10	3	7	2	2	2	2	2	2	2	2	2	2
Nonepidemic cerebrospinal meningitis.....	2	1	1	1	1	1	1	1	1	1	1	1	1
Progressive locomotor ataxia (tabes dorsalis).....	1	1	1	1	1	1	1	1	1	1	1	1	1
Other diseases of the spinal cord.....	71	44	27	10	59	2	2	2	2	2	2	2	2
Cerebral hemorrhage.....	3	1	2	1	2	2	2	2	2	2	2	2	2
Cerebral embolism and thrombosis.....	3	1	2	1	2	2	2	2	2	2	2	2	2
Softening of the brain.....	3	1	2	1	2	2	2	2	2	2	2	2	2
Hemiplegia and other paralysis, cause unspecified.....	6	2	4	2	4	4	4	4	4	4	4	4	4
General paralysis of the insane.....	7	5	2	2	7	7	7	7	7	7	7	7	7
Dementia precox and other psychoses.....	5	4	1	1	5	5	5	5	5	5	5	5	5
Epilepsy.....	1	1	1	1	1	1	1	1	1	1	1	1	1
Convulsions (under 5 years of age).....	3	2	1	1	2	2	2	2	2	2	2	2	2
Other diseases of the nervous system.....	3	3	3	3	3	3	3	3	3	3	3	3	3

Diseases of the circulatory system

Pericarditis.....	3	3	3	3	3	3	3	3	3	3	3	3	3
Endocarditis, specified as acute.....	9	6	3	4	9	9	9	9	9	9	9	9	9
Endocarditis, unspecified (under 45 years of age).....	3	1	2	2	3	3	3	3	3	3	3	3	3
Endocarditis, specified as chronic, and other valvular diseases.....	27	16	11	6	20	1	1	1	1	1	1	1	1
Endocarditis, unspecified (45 years and over).....	4	2	2	1	4	4	4	4	4	4	4	4	4
Myocarditis, acute.....	1	1	1	1	1	1	1	1	1	1	1	1	1
Myocarditis, unspecified (under 45 years of age).....	4	2	2	2	4	4	4	4	4	4	4	4	4
Myocarditis, chronic, and myocardial degeneration.....	47	23	24	12	35	1	1	1	1	1	1	1	1
Other diseases of the myocardium, unspecified.....	7	6	6	2	5	5	5	5	5	5	5	5	5
Angina pectoris.....	3	2	1	1	2	2	2	2	2	2	2	2	2
Diseases of the coronary arteries.....	16	15	1	8	8	8	8	8	8	8	8	8	8

TABLE 4.—DEATHS OF RESIDENTS OF THE CANAL ZONE AND THE CITIES OF PANAMA AND COLON BY CAUSE, SEX, COLOR, AND AGE, 1933—Continued

Cause of death	Sex		Color			Age (in years)								Age un- known			
	Total deaths	M	F	W	B	Y	Under one year	1-5	6-10	11-20	21-30	31-40	41-50		51-60	61-75	76-100
<i>Diseases of the circulatory system—Continued.</i>																	
Functional diseases of the heart.....	1	1			1		1	1	1	4	2	3	7	1	5	2	
Other and unspecified diseases of the heart.....	29	19	10	4	25								3	3	1	1	
Aneurysm (except of the heart).....	7	6	1		7												
Arteriosclerosis (diseases of the coronary arteries excepted).....	43	23	20	13	30							3	5	6	23	6	
Gangrene.....	4	2	2		4		1	1						2			
Other diseases of the arteries.....	1		1		1							1					
Idiopathic anomalies of the blood-pressure.....	5		5	1	4							1	4				
<i>Diseases of the respiratory system.</i>																	
Diseases of the annexae of the nasal fossae.....	1	1			1					1							
Diseases of the larynx.....	2	2		1	1				1				1				
Bronchitis, acute.....	17	8	9	3	14		9	7		1							
Bronchitis, chronic.....	1				1							1					
Bronchitis, unspecified (under 5 years of age).....	3	3		2	1		2	1		4							
Bronchopneumonia.....	147	81	66	19	127	1	67	41	6	4	5	4	6	7	5	2	
Capillary bronchitis.....	1		1		1												
Lobar pneumonia.....	68	48	20	6	62		7	7	2	4	6	6	10	13	10	2	
Pneumonia, unspecified.....	17	12	5	1	16		3	2	2	1	3	2	2	2	1	3	
Pleurisy.....	3	1	2	1	2		1	1	1								
Other congestive conditions of the lungs.....	6	2	4	2	4					1	1	1	1	1	1	2	
Asthma.....	2	1	1	1	1						2						
Chronic, interstitial pneumonia including occupational diseases of the respiratory system.....	1	1		1									1				
Other diseases of the respiratory system, including gangrene of the lung (tuberculosis excepted).....	1	1			1											1	
<i>Diseases of the digestive system</i>																	
Diseases of the pharynx and tonsils.....	2		2	1	1						2						
Other diseases of the buccal cavity and annexa (including adenoid vegetations).....	1	1			1		1										
Ulcer of the stomach.....	14	8	6	2	11	1					4	1	3	4	2		
Ulcer of the duodenum.....	6	6		2	4								1	3	2		
Other diseases of the stomach (cancer excepted).....	2	1	1														
Diarrhea and enteritis (under 2 years of age).....	153	85	68	15	136	2	116	37	1						1		
Diarrhea and enteritis (2 years and over).....	9	6	3	5	9	1	7	1	1	5	2	1	1	1	1		
Appendicitis.....	15	10	5	5	9		1	1									
Hernia.....	7	5	2	3	4		2	1	1			1	4	1	1	4	
Intestinal obstruction.....	8	2	6		8		2										

TABLE 4.—DEATHS OF RESIDENTS OF THE CANAL ZONE AND THE CITIES OF PANAMA AND COLON BY CAUSE, SEX, COLOR, AND AGE, 1933—Continued

Cause of death	Total deaths	Sex		Color			Age (in years)										Age un- known
		M	F	W	B	Y	Under one year	1-5	6-10	11-20	21-30	31-40	41-50	51-60	61-75	76-100	
<i>Congenital malformations (stillbirths not included)</i>																	
Congenital hydrocephalus.....	3	1	2		3		1	2									
Congenital malformations of the heart.....	3	2	1		3		2	1									
Other congenital malformations.....	5	4	1	2	3		4								1		
<i>Diseases of early infancy</i>																	
Congenital debility (under 1 year of age).....	47	29	18	3	44		47										
Premature birth (under 1 year of age).....	56	34	22	12	44		56										
Injury at birth, Cesarean operation (under 3 months of age).....	3	2	1	1	2		3										
Injury at birth, without Cesarean operation (under 3 months of age).....	11	10	1	2	9		11										
Atelectasis (under 3 months of age).....	22	12	10	1	21		22										
Icterus of the newborn (under 3 months of age).....	2	2		1	1		2										
Sclerema (under 3 months of age).....	1		1		1		1										
Other diseases peculiar to early infancy (under 3 months of age).....	20	12	8	1	19		20										
<i>Senility</i>																	
Senility.....	9	4	5	3	6										5		4
<i>Violent and accidental deaths</i>																	
Suicide by solid or liquid poisons, or by absorption of corrosive substances.....	7	4	3	2	5					3	2	1	1				
Suicide by hanging or strangulation.....	1	1				1											
Suicide by drowning.....	1	1															
Suicide by firearms.....	5	5		4	1						1	3	1				
Suicide by jumping from high places.....	1	1		1													
Homicide by firearms.....	4	2	2	2	2						2	2	1				
Homicide by cutting or piercing instruments.....	7	3	4		7				3	3	2	2	1				
Homicide by other means.....	3	2	1		3					2	2	1					
Attack by venomous animals.....	1	1			1					1	1						
Other acute accidental poisonings (gas excepted).....	3	1	2		3			1			1		1				
Accidental burns (conflagration excepted).....	4	3	1		4		1	2									
Accidental drowning.....	21	21		3	18		1		1	4	5	6	2	2			
Accidental traumatism by firearms (wounds of war excepted).....																	
Accidental traumatism by fall.....	2	2		2							1			1			
Accidental traumatism by crushing, landslide.....	16	13	3	3	13			1		3	3	4		2	3		
Excessive heat.....	1		1		1				1								
Foreign bodies.....	3	1			1												
Other accidents.....	1	1	2	1	2			1		1			1				
Violent deaths of which the nature (accident, suicide, homicide) is unknown.....	1	1			1							1					

<i>Ill-defined causes</i>																	
Sudden death.....	12	10	2	2	9	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ill-defined.....	16	8	8	4	12	2	4	.....	1	1	2	4	.....	.....	.....	.....
Not specified or unknown.....	5	1	4	.....	5	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Supplemental violent and accidental deaths</i>																	
Other machinery accidents.....	2	2	.....	.....	2	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....
Other railroad accidents.....	1	1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Automobile accidents (primary).....	16	15	1	4	12	.....	2	1	2	7	3	.....	1	.....	.....	.....
Water transportation accidents.....	1	1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Air transportation accidents.....	1	1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	1,974	1,132	842	314	1,635	25	424	179	33	144	185	215	305	206	203	73	7

TABLE 5—DEATHS OF RESIDENTS, BY PLACE OF RESIDENCE, ABSOLUTE NUMBERS AND ANNUAL RATES PER 1,000, 1933

Disease	ABSOLUTE NUMBERS										ANNUAL RATES PER 1,000									
	ALL CASES (including employees)										ALL CASES (including employees)									
	CANAL ZONE					CANAL ZONE					CANAL ZONE					CANAL ZONE				
	ATLANTIC SIDE		PACIFIC SIDE			ATLANTIC SIDE		PACIFIC SIDE			ATLANTIC SIDE		PACIFIC SIDE			ATLANTIC SIDE		PACIFIC SIDE		
Total	Excluding Army and Navy	Army and Navy (officers and enlisted men)	Excluding Army and Navy	Others	Army and Navy (officers and enlisted men)	Excluding Army and Navy	Others	Army and Navy (officers and enlisted men)	Excluding Army and Navy	Others	Excluding Army and Navy	Others	Army and Navy (officers and enlisted men)	Excluding Army and Navy	Others	Excluding Army and Navy	Others	Army and Navy (officers and enlisted men)	City of Panama	City of Colon
POPULATION																				
<i>Infectious and parasitic diseases</i>																				
Typhoid fever	7																			
Measles	4	1				1														
Diphtheria	6																			
Influenza with respiratory complications specified	3																			
Influenza without respiratory complications specified	2					1														
Dysentery, amebic	12	1																		
Dysentery, unspecified or due to other causes	1																			
Erysipelas	1																			
Epidemic cerebrospinal meningitis	1																			
Tetanus	2																			
Tuberculosis of the respiratory system	308	4	1	14		1	1	98	190	2										
Tuberculosis of the meninges and central nervous system	13								2	11										
Tuberculosis of the intestines and peritoneum	1								1	1										
Tuberculosis of the vertebral column	1								1	1										
Disseminated tuberculosis, acute	4	1							2	1										
Disseminated tuberculosis, unspecified	3								2	1										
Leprosy	7																			
Syphilis	69	1	5	3					16	44										
Purulent infection, pyemia (nonpuerperal)	3	1							3	2										
Malaria	15	2				1	2	1	3	6										
Other diseases caused by helminths	1									1										
<i>Cancers and other tumors</i>																				
Cancer and other malignant tumors of the buccal cavity and pharynx	6																			
Cancer and other malignant tumors of the digestive tract and peritoneum	47	2		3		4		8	30											
Cancer and other malignant tumors of the respiratory system	3							1	2											

	29	1	1	3	1	9	14	19	.097	.15	.233	.20	.30	.177
Cancer and other malignant tumors of the uterus.....														.177
Cancer and other malignant tumors of other female genital organs.....	2			1		1	3	.013			.078		.033	.012
Cancer and other malignant tumors of the breast.....	8	1		3				.053	.51		.233		.033	.038
Cancer and other malignant tumors of the male genitourinary organs.....	4					2	2	.026					.067	.025
Cancer and other malignant tumors of the skin.....							1	.007						.012
Cancer and other malignant tumors of other or unspecified organs.....	10	4				1	5	.067	.39				.033	.063
Nonmalignant tumors of the uterus.....	5					3	2	.033					.10	.025
Nonmalignant tumors of other organs.....	1						1	.007						.012
<i>Rheumatic diseases, nutritional diseases, diseases of the endocrine glands and other general diseases</i>														
Acute rheumatic fever.....	2					2		.013					.067	.050
Diabetes mellitus.....	11	3				4	4	.072	.29				.133	.012
Scurvy.....	1						1	.007						
Pellagra.....	1			1			1	.007			.078			
Rickets.....	1							.007						.012
Myxedema and cretinism.....	1						1	.007	.097					.012
Diseases of the thymus gland.....	1						1	.007						.012
Other general diseases.....	1						1	.007						.012
<i>Diseases of the blood and blood-making organs</i>														
Primary purpuras.....	1						1	.007						.012
Other anemias.....	2			1			1	.013			.078		.033	.012
Pseudoleukemias (Hodgkin's disease).....	1					1		.007						
Diseases of the spleen.....	3			2		1		.02			.16		.033	
<i>Diseases of the nervous system and of the organs of special sense</i>														
Encephalitis (nonepidemic).....	1				1			.007				.20		
Simple meningitis.....	10	3				1	6	.066	.29				.033	.076
Nonepidemic cerebrospinal meningitis.....	2					1	1	.013					.033	.012
Progressive locomotor ataxia (tabes dorsalis).....	1					1		.007					.033	
Other diseases of the spinal cord.....	71	1		7		26	33	.007	.51				.867	.417
Cerebral hemorrhage.....	3	1	2	1		1	2	.468	.097	.337	.15	.544	.033	.025
Cerebral embolism and thrombosis.....	3					1	1	.02			.078		.033	.012
Softening of the brain.....	3			1										
Hemiplegia and other paralysis, cause unspecified.....	6			1		3	2	.04			.078		.10	.025
General paralysis of the insane.....	7			6			1	.046			.47			.012
Dementia precox and other psychoses.....	5			4			1	.033			.311			.012
Epilepsy.....	1						1	.007						.012
Convulsions (under 5 years of age).....	3					1	2	.02					.033	.025
Other diseases of the nervous system.....	3						3	.02						.038

TABLE 5—DEATHS OF RESIDENTS, BY PLACE OF RESIDENCE, ABSOLUTE NUMBERS AND ANNUAL RATES PER 1,000, 1933—Continued

ABSOLUTE NUMBERS											ANNUAL RATES PER 1,000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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Disease	Total	CANAL ZONE										Total	CANAL ZONE										City of Colon	City of Panama																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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TABLE 5—DEATHS OF RESIDENTS, BY PLACE OF RESIDENCE, ABSOLUTE NUMBERS AND ANNUAL RATES PER 1,000, 1933—Continued

Disease	ABSOLUTE NUMBERS									
	ALL CASES (including employees)									
	CANAL ZONE					CANAL ZONE				
	ATLANTIC SIDE		PACIFIC SIDE			ATLANTIC SIDE		PACIFIC SIDE		
	Excluding Army and Navy	Army and Navy (officers and en- listed men)	Excluding Army and Navy	Others	Army and Navy (officers and en- listed men)	Excluding Army and Navy	Others	Army and Navy (officers and en- listed men)	Others	Army and Navy (officers and en- listed men)
Total	Ameri- cans		Ameri- cans			Ameri- cans		Ameri- cans		
<i>Diseases of pregnancy, childbirth, and the puer- peral state</i>										
Abortion with septic conditions.....										
Placenta previa.....					1					.013
Other puerperal hemorrhages.....					1					.007
Puerperal septicemia and pyemia—(not spec- ified as due to abortion).....				2						.013
Puerperal tetanus—(not specified as due to abortion).....									16	.032
Puerperal albuminuria and eclampsia.....										.007
Other toxemias of pregnancy.....			4							.053
Cesarean operation.....			2							.013
Other accidents of childbirth.....			1							.007
			1							.013
<i>Diseases of the skin and cellular tissue</i>										
Furuncle, carbuncle.....				1					.078	.007
Phlegmon, acute abscess.....								.17		.026
Other diseases of the skin and annexa, and of the cellular tissue.....										.033
					1					.033
<i>Diseases of the bones and organs of locomotion</i>									.20	.038
Osteomyelitis.....										.012
Diseases of the joints (tuberculosis and rheuma- tism excepted).....	1									
								.097		.007
<i>Congenital malformations (stillbirths not included)</i>										
Congenital hydrocephalus.....					1					.033
Congenital malformations of the heart.....					3					.025
Other congenital malformations.....				1					.078	.038
					2				.193	.025
<i>Diseases of early infancy</i>										
Congenital debility (under 1 year of age).....									.078	.33
Premature birth (under 1 year of age).....				5					.039	.266
					16				.39	.533
					26				.39	.867

Injury at birth, Cesarean operation (under 3 months of age).....	3					1			2	.02						.20		.025
Injury at birth without Cesarean operation (under 3 months of age).....	11							1	10	.072							.033	.126
Atelectasis (under 3 months of age).....	22							1	21	.144							.033	.266
Icterus of the newborn (under 3 months of age).....	2							1	2	.013							.033	.025
Sclerema (under 3 months of age).....	1									.007								
Other diseases peculiar to early infancy (under 3 months of age).....	20			1		2			16	.13		.097				.16	.033	.20
<i>Scintilly</i>																		
<i>Femility</i>	9					1			3	.059						.078	.10	.063
<i>Violent and accidental deaths</i>																		
Suicide by solid or liquid poisons, or by absorption of corrosive substances.....	7					1			6	.046						.078		.076
Suicide by hanging or strangulation.....	1								1	.007							.033	.012
Suicide by drowning.....	1					1			1	.007								
Suicide by firearms.....	5						1		1	.033				.15	.078	.20	.033	.012
Suicide by jumping from high places.....	1									.51								
Suicide by fire.....	4					1			3	.026					.078			.038
Homicide by firearms.....	7							2	5	.046					.078		.067	.083
Homicide by cutting or piercing instruments.....	3					1			1	.02							.033	.012
Homicide by other means.....	1									.007		.097						
Attack by venomous animals.....	1									.02							.033	.025
Other acute accidental poisonings (gas excepted).....	3							1	2	.026								.050
Accidental burns (conflagration excepted).....	4								4	.14					.233			.101
Accidental drowning.....	21			5	3	3			2			.453	.51				.067	
Accidental traumatism by firearms (wounds of war excepted).....	2			1						.013			.51	.17				
Accidental traumatism by fall.....	16					1			6	.105		.097		.15			.20	.101
Accidental traumatism by crushing, landslide.....	1							1		.007					.078			
Excessive heat.....	1									.007								.012
Foreign bodies.....	3							1	2	.02			.15					.025
Other accidents.....	1									.007						.20		
Violent deaths of which the nature (accident, suicide, homicide) is unknown.....	1								1	.007								.012
<i>Ill-defined causes</i>																		
Sudden death.....	12								4	.079							.267	.050
Ill-defined.....	16					1			5	.105		.097			.16		.167	.101
Not specified or unknown.....	5								2	.033							.10	.025
<i>Supplemental violent and accidental deaths</i>																		
Other machinery accidents.....	2								1	.013					.078			.012
Other railroad accidents.....	1									.007					.078			
Automobile accidents (primary).....	16					2		1	7	.105			.17		.16	.20	.167	.088
Water transportation accidents.....	1									.007					.078			
Air transportation accidents.....	1							1		.007						.20		
Total.....	1,974	10	88	14	33	145	15	488	1,181	13.01	5.07	8.51	2.36	4.94	11.29	2.95	16.27	14.95

TABLE 6.—STATISTICS REGARDING AMERICAN EMPLOYEES AND THEIR FAMILIES, 1933

	Annual death rate per 1,000
White employees from the United States:	
Disease.....	3.89
External causes.....	.35
Total.....	4.25
Families of white employees from the United States:	
Disease.....	4.45
External causes.....	.36
Total.....	4.81
White employees from the United States and their families:	
Disease.....	4.27
External causes.....	.36
Total.....	4.62
Number of American children born on the Isthmus during the year.....	198
Deaths among American children under 1 year of age.....	7
Infant mortality rate among American children (number of deaths per 1,000 live births).....	35.35

TABLE 7—DISCHARGES AND DEATHS IN HOSPITALS OF THE PANAMA CANAL, 1933
ABSOLUTE NUMBERS

Disease	EMPLOYEES' ONLY		ALL CASES (including employees)										City of Panama	City of Colon	Non-residents
			CANAL ZONE					PACIFIC SIDE							
	Total	ATLANTIC SIDE			PACIFIC SIDE		Army and Navy (officers and enlisted men)	Army and Navy (officers and enlisted men)	City of Panama	City of Colon	Non-residents				
		Excluding Army and Navy	Americans	Others	Excluding Army and Navy	Americans						Others			
POPULATION	3,244	9,100	151,851	1,972	10,338	5,933	6,682	12,847	5,079	79,000	30,000				
<i>Infectious and parasitic diseases</i>															
Typhoid fever		2	17		1		1	2	1	4	2		6		
Relapsing fever			6							1			3		
Measles			31	4	2	3	4			1			7		
Scarlet fever			7	2	1	2	2	7	1	2	2		1		
Whooping cough			6	1			4								
Diphtheria		2	22		4		3	8			3				
Diphtheria bacillus carrier			4					2							
Influenza with respiratory complications specified	5	13	53	2	8	13	7	1	2	2	16		2		
Influenza without respiratory complications specified	80	59	397	13	10	25	105	24	134	57	22		7		
Dysentery, amebic	1		8				1			2	2		3		
Dysentery, bacillary			1												
Dysentery, unspecified or due to other causes			1												
Erysipelas	6	2	17	1	2	1	3		1	4	5				
Acute poliomyelitis and acute polioencephalitis			4				2			2	2				
Lethargic or epidemic encephalitis			2			1	1								
Epidemic cerebrospinal meningitis			1												
Rabies			1												
Tuberculosis of the respiratory system	11	22	103	4	9	7	6	15	8	25	22		1		
Tuberculosis of the meninges and central nervous system			4							2	2				
Tuberculosis of the intestines and peritoneum			1							1	1				
Tuberculosis of the vertebral column			12		3				1	7	1				
Tuberculosis of the skin and subcutaneous cellular tissue			1						1						
Tuberculosis of the lymphatic system (bronchial, mesenteric and retroperitoneal glands excepted)		2	7		1			2		3	1				
Tuberculosis of the genitourinary system		2	3		1		1			1	1				
Tuberculosis, disseminated, acute		2	3		2					1	1				
Tuberculosis, disseminated, unspecified			2							2	2				
Syphilis, primary		1	8			2		1	1				2		
Syphilis, secondary						6	2	6	11				6		
Syphilis, tertiary		28	81	2	6	2	2	13	4	22	1		9		
Syphilis, cerebrospinal		4	17		1	1		3		8	1		3		
Syphilis, hereditary			7		1			1		4	1				

Soft chancre	6	11	104		3	11	4	7	58	8	9	4
Chancroidal lymphadenitis			6		1				5			
Gonococic urethritis	12	38	239	1	17	13	2	28	119	19	27	13
Gonococic arthritis			9			4			3	2		
Gonococic ophthalmia			19		6			1		4	2	2
Gonococic vaginitis			15						12	9	3	
Other gonococic infections and other venereal diseases			4		1			1		1	1	1
Purulent infection, pyemia and septicemia (nonpuerperal)		1									2	
Septicemia			4					1			3	
Malaria, estivoautumnal	41	200	803	14	124	52	65	201	84	56	120	87
Malaria, tertian	45	39	375	13	27	37	77	45	87	20	50	19
Malaria, quartan	1	1	13	2	1	1	1		1	5		2
Malaria, mixed			2			2						
Malaria, clinical (symptomatic, parasites not found)		1		1		1						
Hemoglobinuria, malarial												1
Yaws			1		1							
Oriental sore (Leishmaniasis)		1	1							1		
Other diseases due to protozoal parasites							1					
Ankylostomiasis	4	4	45		6	3	1	12	1	5	11	6
Filariasis			1	1								
Other diseases caused by helminths			24		1		3	7		1	6	6
Other mycoses	1	1	9	1	1	4			1		2	
Chickenpox		7	22		3		8	3		2	5	1
German measles			2				2					
Miliary fever			1	1								
Mumps		1	3		1				1		1	
Vaccinia			1								1	

Cancers and other tumors

Cancer and other malignant tumors of the buccal cavity and pharynx	1	5	10	2	2			2			3	1
Cancer and other malignant tumors of the digestive tract and peritoneum		2	24		2	1	9	5		1	5	1
Cancer and other malignant tumors of the respiratory system			1		3		2	1		6	5	3
Cancer and other malignant tumors of the uterus			27	1				7				
Cancer and other malignant tumors of other female genital organs			2					1			1	
Cancer and other malignant tumors of the breast			12	1	1		5	1			4	
Cancer and other malignant tumors of the male genito-urinary organs	1	1	4	1	1						2	
Cancer and other malignant tumors of the skin									1		3	
Cancer and other malignant tumors of other or unspecified organs			11		6	1					3	1
Nonmalignant tumors of the uterus			97	3	7		12	14		27	29	5
Nonmalignant tumors of other female genital organs	3	6						1				
Nonmalignant tumors of the brain			2						2			
Nonmalignant tumors of other organs	1	5	33	4	3	8	1	3	5	4	5	
Tumors of the uterus (nature unspecified)			1								1	
Tumors of other organs (nature unspecified)	2	2	14	4	2	1	2	1	2	1	1	

TABLE 7—DISCHARGES AND DEATHS IN HOSPITALS OF THE PANAMA CANAL, 1933—Continued
ABSOLUTE NUMBERS

Disease	EMPLOYEES ONLY		ALL CASES (including employees)									
			Total	CANAL ZONE						City of Colon	City of Panama	Non-residents
	ATLANTIC SIDE			PACIFIC SIDE								
	White	Black		Excluding Army and Navy	Army and Navy (officers and enlisted men)	Others	Excluding Army and Navy	Army and Navy (officers and enlisted men)	Americans				Others
<i>Rheumatic diseases, nutritional diseases, diseases of the endocrine glands and other general diseases</i>												
Acute rheumatic fever.....	7	14	8		2	5		1	2		3	3
Chronic rheumatism, osteoarthritis.....			56		2		5	7	7	12		9
Gout.....	2		2									
Diabetes mellitus.....	5	7	75		2	18	1	6	18	1	11	13
Glycosuria.....		1	2									5
Pellagra.....			1									
Rickets.....		1	3			1		1	1			
Diseases of the pituitary body.....			3		1		1			1		1
Simple goiter.....	3	1	11		1		1	3		2		3
Exophthalmic goiter.....	1		5			1		1		1		2
Myxedema and cretinism.....			4					1				1
Tetany.....			3									3
Other diseases of the thyroid and parathyroid glands.....	1		6				1	3		1		1
Other general diseases.....	3	1	41		5	10	1	2	4	2	14	3
<i>Diseases of the blood and blood-making organs</i>												
Pernicious anemia.....	1		5		1	1			2			1
Other anemias.....		1	9		1				2			1
True leukemias.....	1		2				1	1			1	4
Pseudoleukemias (Hodgkin's disease).....			1						1			
Diseases of the spleen.....	1	1	4						1			
<i>Chronic poisonings and intoxicants</i>												
Acute alcoholism.....	6	2	36		3	2	3	5	1		5	3
Chronic alcoholism.....			8		1		2			13		1
Alcoholic psychosis.....	1		19				5	2		4		3
Drug habit.....	1		3		2					1		
Lead poisoning.....			4					4				
Under observation for lead poisoning.....	5	11	17		1			4	4		3	5

TABLE 7—DISCHARGES AND DEATHS IN HOSPITALS OF THE PANAMA CANAL, 1933—Continued
ABSOLUTE NUMBERS

Disease	EMPLOYEES ONLY		Total	CANAL ZONE										City of Colon	City of Panama	Non-residents
	White	Black		ATLANTIC SIDE					PACIFIC SIDE							
				Excluding Army and Navy		Army and Navy (officers and enlisted men)	Excluding Army and Navy		Army and Navy (officers and enlisted men)							
				Americans	Others		Americans	Others								
<i>Diseases of the circulatory system—Continued</i>																
Other diseases of the arteries.....			1													
Hemorrhoids.....	14	29	157	9	8	34	12	12	12	50	1	17	14	1	1	2
Varicose.....	3	1	23	2	2	3	1	1	1	2	8	1	3	2	1	1
Phlebitis.....	2		8	1		1				2						
Thrombosis of vein.....	2		12	1		1				2						
Other diseases of the veins.....			1													
Lymphangitis.....		4	13		1											
Lymphadenitis, nonvenereal.....	1															
Other diseases of the lymphatic system.....	8	23	210	1	16	14	11	1	1	2	5	3	3	3	3	3
Idiopathic anomalies of the blood-pressure.....	6		5		1	1				104	16	16	24	1	1	6
Hemorrhage without specified cause.....	1	14	78	2	8		9		2	25	2	8	23	1	1	1
Other diseases of the circulatory system.....	1		1	1			3		1	2	1	3	3	1	3	
<i>Diseases of the respiratory system</i>																
Diseases of the nasal fossae.....																
Diseases of the annexae of the nasal fossae.....	52	34	406	19	16	108	45	14	14	132	37	28	7	7	7	7
Diseases of the larynx.....	6	7	63	3	1	16	5	5	3	21	3	3	2	2	2	2
Bronchitis, acute.....	1		8							1						
Bronchitis, chronic.....	36	11	343	23	9	17	68	29	29	96	32	58	1	1	1	1
Bronchitis, unspecified (under 5 years of age).....	8	2	63	3	2	24	13	2	2	15	4	4	4	4	4	4
Bronchitis, unspecified (5 years and over).....			4		2											
Bronchopneumonia.....	1	2	4	2	1											
Capillary bronchitis.....	11	12	160	3	4	8										
Lobar pneumonia.....			1	3	4											
Pneumonia, unspecified.....			1													
Pleurisy.....	22	7	70	2	13	2	1	1	1	1	1	20	41	4	4	4
Empyema.....	1	3	7	1	2					1	25	11	11	6	6	6
Pneumothorax.....	5		25		2	3	2	2	4	3		3	4	2	2	2
Other diseases of the pleura.....			1													
Congestion of the lungs.....			1							1						
Asthma.....			1													
Chronic interstitial pneumonia including occupational diseases of the respiratory system.....	19	19	114	2	9	17	13	9	1	5	32	25	25	2	2	2
	1	4	12	1		1			4	1		3	3	2	2	2

Gangrene of the lung.
Other diseases of the respiratory system (tuberculosis ex-
cepted).....

Diseases of the digestive system

Diseases of the pharynx and tonsils.....
Diseases of the teeth and gums.....
Stomatitis.....
Adenoids.....
Other diseases of the buccal cavity and anuxa.....
Diseases of the esophagus.....
Ulcer of the stomach.....
Ulcer of the duodenum.....
Acute gastritis.....
Chronic gastritis.....
Acute indigestion.....
Other diseases of the stomach (cancer excepted).....
Diarrhea and enteritis (under 2 years of age).....
Intestinal autointoxication (under 2 years of age).....
Diarrhea and enteritis (2 years and over).....
Appendicitis, acute.....
Appendicitis, chronic.....
Hernia.....
Intestinal obstruction.....
Intestinal autointoxication (2 years and over).....
Other diseases of the intestines.....
Cirrhosis of the liver, not specified as alcoholic.....
Abscess of the liver (unqualified).....
Other diseases of the liver.....
Biliary calculi.....
Cholecystitis.....
Other diseases of the gall bladder and biliary passages.....
Peritonitis, cause not specified.....

Diseases of the genitourinary system

Acute nephritis (including unspecified under 10 years of age).....
Chronic nephritis.....
Nephritis, unspecified (10 years and over).....
Pyonephritis.....
Pyelonephrosis.....
Pyelitis.....
Perinephritic abscess.....
Hydronephrosis.....
Movable kidney.....
Other diseases of the kidneys and ureters (puerperal diseases
excepted).....
Calculi of the urinary passages.....
Diseases of the bladder (tumors excepted).....
Stricture of the urethra.....
Other diseases of the urethra, urinary abscess, etc.....

1	1	4	1	6	7	1	2	210	127	6	5
32	69	171	241	186	66	194	13	4	20		23
1,287	7	7	7	28	18	13	1	1	1		5
111	3	2	2	2	2	2					
13	2	1	3	2	3	2			5		
6				3	3	7		3	3		1
20		3	3	15	1	12		9	9		7
66	9	3	11	7	16	39		19	12		5
119	1	9	9	3	3	20		3	2		2
53	7	4	9	3	3			1			
2	1										
36	4	3		12	1	7		4	5		
33	1	1		4	3			4	17		4
8	1			3					3		
21	6	16	27	41	27	44		18	41		14
38	6	16	59	28	6	77		18	19		15
4	6	7	31	17	6	31		9	7		7
8	2	6	15	27	20	24		29	39		12
9	11	22	14	19	20			3	1		1
58	11	1	1					4			
3	6		1					3			
306	16	27	28	26	35	91		25	47		11
3				2	1			2			
3											
14				1	3			4			1
84	2	3	4	28	6	9		8	11		8
28	2	1	2		3	11		4	5		
15			2	2	4	1		1	3		2
12		1	1		2			4	3		1
25	1	1	1		3			13	3		
2								1			
5				1	2			3	1		1
7				2	1			36	22		5
160	9	19	14	23	18	23			5		
11			2	1	3	3			1		
8		2	2	1	2	2					
2	2										
23	2		1	4	3	10		3			
45	4			14	4	9		3	7		2
123	11	9	10	17	15	33		8	14		6
36	1	5	2		7	1		8	9		4
42	1	4	2	3	5	14		6	7		

TABLE 7—DISCHARGES AND DEATHS IN HOSPITALS OF THE PANAMA CANAL, 1933—Continued
ABSOLUTE NUMBERS

Disease	EMPLOYEES ONLY		ALL CASES (including employees)										City of Panama	Non-residents	
			CANAL ZONE												
			Total	ATLANTIC SIDE		PACIFIC SIDE									
				Excluding Army and Navy		Army and Navy (officers and enlisted men)	Excluding Army and Navy		Army and Navy (officers and enlisted men)						
	Americans	Others		Americans	Others										
<i>Diseases of the genitourinary system—Continued</i>	White	Black													
Acute prostatitis.....	4	3	22							3	1	10	5		
Chronic prostatitis.....	7	6	53		1					17	2	18	4	2	
Abscess of the prostate.....			1										1		
Hypertrophy of the prostate.....	4	13	24		2	3					4	6	3	5	1
Other diseases of the prostate.....	1		1								1				
Hematocoele.....		1	1												
Hydrocoele.....		9	23			2				1	2	2	1	8	2
Other diseases of the male genital organs, not specified as venereal.....	3	15	58			5				8	5	5	13	10	1
Cysts of the ovary.....	2		30		1	4				4	4	4	6	9	2
Salpingitis and pelvic abscess, female.....	1	2	104		3	8					7	20	29	34	3
Other diseases of the ovaries and diseases of the tubes and parametrium.....			18			1						3	4	10	
Leukorrhea.....	1		4										3		
Dysmenorrhea.....		1	18		4	1				1	2	5	1	1	
Cervicitis.....			74		4	8					22	14	3	22	
Endometritis.....	1	1	30		2	5					3	3	1	2	
Stenosis of the cervix.....			2										6	10	1
Prolapse of uterus.....			2										1	1	
Uterine hemorrhage (nonpuerperal).....	1		4		1	1							1	1	
Other diseases of the uterus not specified as venereal.....	1	4	21		1	2					5	3	7	2	
Nonpuerperal diseases of the breast (cancer excepted).....	1		115		8	10					17	22	15	40	3
Other diseases of the female genital organs, not specified as venereal.....			23		1	2					3	4	4	7	2
	1	1	30		2	3					7	6	4	7	1
<i>Diseases of pregnancy, childbirth, and the puerperal state</i>															
Abortion with septic conditions.....			6									1	1		4
Abortion without mention of septic conditions (to include hemorrhages).....															
Ectopic gestation, without mention of septic conditions.....	1		142		8	14					28	13	39	37	3
Other accidents of pregnancy (not to include hemorrhages).....			9										2	4	
Placenta previa.....			13		1	2					2	2	1	5	
Other puerperal hemorrhages.....			5								3		1	1	
			9			1						2	1	5	

TABLE 7—DISCHARGES AND DEATHS IN HOSPITALS OF THE PANAMA CANAL, 1933—Continued.
ABSOLUTE NUMBERS

ALL CASES (including employees)													
Disease	EMPLOYEES ONLY		CANAL ZONE								City of Panama	Non-residents	
			Total	ATLANTIC SIDE				PACIFIC SIDE					City of Colon
				Excluding Army and Navy		Army and Navy (officers and enlisted men)	Excluding Army and Navy		Army and Navy (officers and enlisted men)				
				Americans	Others		Americans	Others					
<i>Diseases of early infancy (under one year of age)</i>													
Malnutrition			18		1			3	2		10		
Other congenital debility			12		2			3			1	6	
Premature birth			32		2			5	2		15	8	
Injury at birth, Cesarean operation			5					1	3		1		
Injury at birth, without Cesarean operation			44					14	7		18	4	
Atelasia			1								1		
Other diseases peculiar to early infancy			2		1				1				
<i>Senility</i>													
Senility	3	44	55	2	9				9		17	9	
Senile dementia			26		1						1	15	
<i>Violent and accidental causes</i>													
Suicide and attempted suicide by solid or liquid poisons, or by absorption of corrosive substances			7				2	1	2	1			
Suicide and attempted suicide by firearms	1		3				1	1			1		
Suicide and attempted suicide by cutting or piercing instruments			1				1						
Homicide and attempted homicide by firearms	1		1					1					
Homicide and attempted homicide by cutting or piercing instruments			7				1			1			
Homicide and attempted homicide by other means	1	3	11		2		4	1	2	2	1		
Attack by venomous animals	2	1	10	1	3		1	2	1	1			
Poisoning by food			1				1						
Accidental absorption of poisonous gas	1	1	5					1		1	2		
Other acute accidental poisonings (gas excepted)	3	3	17				1	1	3	3	6		
Accidental burns (conflagration excepted)	3	9	50	2	4		3	4	4	9	15	4	
Accidental drowning or submersion			2				1						
Accidental traumatism by firearms (wounds of war excepted)			9	1	4				2			2	
Accidental traumatism by cutting or piercing instruments (wounds of war excepted)	1	8	39	1	1		1	1	10	9		8	

Accidental traumatism by fall.....	7	19	95		3	1	9	18	16	5	35	8
Accidental traumatism by crushing, landslide.....		4	14			1		5			6	2
Injuries by animals.....	1	1	10				1		8		1	
Hunger and thirst.....		3	3						2		1	
Excessive heat.....	1	2	6				1	1	2		2	
Accidents due to electric currents.....	2	1	4	1						1		
Foreign bodies.....		1	18		3	3	3	4	1	2	1	1
Fractures.....	13	57	329	5	32	43	26	39	51	68	45	20
Dislocations.....		6	28		1	8	3	2	8	1	4	1
Sprains.....	12	25	100	4	3	1	17	16	21	11	17	10
Explosion.....		1	1									1
Lack of care.....			4						4			
Other accidents and external violence.....	24	123	376	11	38	32	23	37	41	85	70	39
<i>Ill-defined causes</i>												
Sudden death.....	1	3	6		1		2	1			2	
Ill-defined.....	20	40	167	6	4	15	30	25	27	10	42	8
Infection of undetermined origin.....		1	10		3	1				4	2	
Not specified or unknown.....		1	2		1					1		
<i>Supplemental violent and accidental causes</i>												
Accidents from agricultural machinery.....			2				1		1			
Other machinery accidents.....	1		7			1	4					2
Other railroad accidents.....		7	7					3			4	
Other street car accidents.....			2			1	1					
Automobile accidents (primary).....	4	3	48	1	1		5	6	14	1	14	6
Motorcycle accidents.....	1	2	3				1	1	3		1	
Other land transportation accidents.....		1	2							1		
Water transportation accidents.....			1					1				1
<i>Normal physiological conditions</i>												
Normal pregnancy.....			84	4	8					16	23	6
Normal labor.....	3		672	31	82		10	17		215	163	6
Newborn child.....			694	25	87		72	103		216	168	7
No disease (companion, observation, etc.).....	40	35	669	58	27	67	119	47	168	63	76	44
Total.....	1,113	1,916	16,180	688	1,385	1,497	1,948	1,772	2,645	2,282	3,002	961

Syphilis, secondary	1.23	.77	.296	1.01	.193	1.01	.299	.467	2.17	.033	.139
Syphilis, tertiary	1.23	3.08	.533	.337	.58	.337	.299	1.01	.787	.70	.278
Syphilis, cerebrospinal		.44	.11	.169	.097	.169		.233		.033	.101
Syphilis, hereditary			.046		.097			.077		.033	.050
Soft chancre	1.85	1.21	.634		.29	1.85	.60	.544	11.42	.267	.114
Chancroidal lymphadenitis			.04		.097				.984		
Gonococcal urethritis	3.70	4.18	1.57	.51	1.64	.219	.299	2.18	23.43	.633	.341
Gonococcal arthritis			.059			.674			.590	.067	.025
Gonococcal ophthalmia			.125		.58			.077	.197	.30	.038
Gonococcal vaginitis			.99					.077	2.36		.012
Other gonococcal infections and other venereal diseases		.11	.026		.097			.077			.025
Purulent infection, pyemia and septicemia (nonpuerperal)											.038
Septicemia			.026								.038
Malaria, estivoautumnal	12.64	21.98	5.29	7.10	12.00	8.76	9.73	15.65	16.53	1.87	1.52
Malaria, tertian	13.87	4.29	2.47	6.59	2.61	7.17	11.52	3.50	17.12	.667	.633
Malaria, quartan		.11	.086	1.01	.097	.169	.15		.197	.167	
Malaria, mixed	.31		.013			.337					
Malaria, clinical (symptomatic, parasites not found)			.013	.51		.169					
Hemoglobinuria, malarial		.11	.007								
Yaws			.007		.097						
Oriental sore (Leishmaniasis)		.11	.007							.033	
Other diseases due to protozoal parasites			.007				.15				
Ankylostomiasis	1.23	.44	.296		.58	.51	.15	.934	.197	.167	.139
Filariasis		.11	.007	.51							
Other diseases caused by helminths	.31		.158		.097		.45	.544		.033	.076
Other mycoses	.31	.11	.059	.51	.097	.674	1.19	.233	.197	.067	.063
Chickenpox		.77	.145		.29		.299			.067	
German measles			.013								
Miliary fever			.007	.51	.097				.197		.012
Mumps		.11	.09								.012
Vaccinia			.007								
<i>Cancers and other tumors</i>											
Cancer and other malignant tumors of the buccal cavity and pharynx	.31	.55	.066	1.01	.193			.156			.038
Cancer and other malignant tumors of the digestive tract and peritoneum		.22	.158		.193	.169	1.35	.389		.033	.063
Cancer and other malignant tumors of the respiratory system			.007					.079			
Cancer and other malignant tumors of the uterus			.178	.51	.29		.299	.545	.20		.063
Cancer and other malignant tumors of other female genital organs			.013					.079			.012
Cancer and other malignant tumors of the breast			.079	.51	.097		.748	.079			.051
Cancer and other malignant tumors of the male genitourinary organs	.31	.11	.026	.51	.097				.197		.025
Cancer and other malignant tumors of the skin		.33	.072		.58	.169					.038
Cancer and other malignant tumors of other or unspecified organs	.92	.66	.639	1.52	.677		1.80	1.09		.90	.367
Nonmalignant tumors of the uterus			.007					.079			
Nonmalignant tumors of other female genital organs			.013								
Nonmalignant tumors of the brain			.007						.394		.063
Nonmalignant tumors of other organs	.31	.55	.217	2.03	.29	1.34	.15	.233	.984	.133	.012
Tumors of the uterus (nature unspecified)			.007								
Tumors of other organs (nature unspecified)	.62	.22	.092	2.03	.193	.169	.299	.079	.394	.033	.012

TABLE 7-A—DISCHARGES AND DEATHS IN HOSPITALS OF THE PANAMA CANAL, 1933—Continued

RATES PER 1,000

ALL CASES (including employees)											
Disease	EMPLOYEES ONLY		CANAL ZONE							City of Colon	City of Panama
			Total	ATLANTIC SIDE		PACIFIC SIDE					
				Excluding Army and Navy		Army and Navy (officers and enlisted men)	Excluding Army and Navy		Army and Navy (officers and enlisted men)		
				Ameri- cans	Others		Ameri- cans	Others			
<i>Rheumatic diseases, nutritional diseases, diseases of the endocrine glands and other general diseases</i>											
Acute rheumatic fever.....			.053				15	.156		.067	
Chronic rheumatism, osteoarthritis.....	2.16	1.54	.369	1.01	.483	.842	1.05	.545	2.36	.267	
Gout.....	.31		.013	1.01							
Diabetes mellitus.....	1.54	.77	.494	1.01	1.74	.169	.897	1.40	.197	.367	
Glycosuria.....		.11	.013							.165	
Pellagra.....			.007		.097			.079		.025	
Rickets.....		.11	.02				15			.012	
Diseases of the pituitary body.....			.02	.51		.169			.197		
Simple goiter.....	.92	.11	.072	.51		.169	.45		.394	.038	
Exophthalmic goiter.....	.31		.033		.097	.169	.15			.025	
Myxedema and cretinism.....			.026				.15			.012	
Tetany.....			.02							.038	
Other diseases of the thyroid and parathyroid glands.....	.31		.04			.17	.45		.197		
Other general diseases.....	.92	.11	.27	2.53	.967	.17	.299	.311	.394	.467	
<i>Diseases of the blood and blood-making organs</i>											
Pernicious anemia.....	.31		.033	.51	.097			.156			
Other anemias.....		.11	.039	.51				.156		.051	
True leukemias.....	.31		.013			.17	.15				
Pseudoleukemias (Hodgkin's disease).....			.007					.077			
Diseases of the spleen.....	.31	.11	.026					.077	.197	.012	
<i>Chronic poisonings and intoxicants</i>											
Acute alcoholism.....	1.85	.22	.237	1.52	.193	.51	.748	.077	2.56	.167	
Chronic alcoholism.....			.053	.51		.337			.787	.012	
Alcoholic psychosis.....	.31		.099			.842	.299		.591	.067	
Drug habit.....	.31		.02	1.01					.197		
Lead poisoning.....	1.23		.026				.599				
Under observation for lead poisoning.....	1.54	1.21	.11	.51			.599	.311		.10	
										.063	

TABLE 7-A—DISCHARGES AND DEATHS IN HOSPITALS OF THE PANAMA CANAL, 1933—Continued

RATES PER 1,000

76

ALL CASES (including employees)														
Disease	EMPLOYEES ONLY		CANAL ZONE										City of Colon	City of Panama
			Total	ATLANTIC SIDE			PACIFIC SIDE							
				Excluding Army and Navy		Army and Navy (officers and enlisted men)	Excluding Army and Navy		Army and Navy (officers and enlisted men)					
				Ameri- cans	Others		Ameri- cans	Others						
<i>Diseases of the circulatory system—continued</i>														
Varices.....	.92	.11	.151	1.01	.193	.51	.156	.15	.156	.393	.033	.038		
Varicoele.....	.62	.11	.053	.51	.17	.299	.156	.15	.156	.393	.033	.038		
Phlebitis.....	.62		.007											
Thrombosis of vein.....		.44	.086		.096	.51	.077	.15	.077	.393	.167	.038		
Other diseases of the veins.....			.053			2.36	1.64	1.01	20.47	.533	.303	.012		
Lymphangitis.....	.31					.17				.291	.012	.038		
Lymphadenitis, nonvenereal.....	2.47	2.53	1.38	.51	1.55	.096	1.56	1.35	1.95	.393	.267	.038		
Other diseases of the lymphatic system.....		.22	.033	1.01	.773		.077	.45	.077	.393	.033			
Idiopathic anomalies of the blood-pressure.....	1.85	1.54	.513	.51										
Hemorrhage without specified cause.....	.31	.11	.072	.51										
Other diseases of the circulatory system.....	.31		.007											
<i>Diseases of the respiratory system</i>														
Diseases of the nasal fossae.....	16.03	3.74	2.67	9.53	1.55	18.20	6.73	1.09	6.73	25.99	1.23	.35		
Diseases of the annexae of the nasal fossae.....	1.85	.77	.414	1.52	.10	2.70	.75	.23	.75	4.13	.10	.09		
Diseases of the larynx.....	.31		.052				.30	.08	.30	.39	.03	.03		
Bronchitis, acute.....	11.10	2.21	2.26	11.66	.87	2.86	10.18	2.26	10.18	18.90	1.07	.73		
Bronchitis, chronic.....	2.47	.22	.448	1.52	.19	4.04	1.95	.16	1.95	2.95	.13	.01		
Bronchitis, unspecified (under 5 years of age).....	.31	.22	.026	1.01	.10						.07			
Bronchitis, unspecified (5 years and over).....	3.39	1.32	1.05	1.01	.39	1.35	1.80	1.17	1.80	10.44	.03	.52		
Bronchopneumonia.....											.67	.14		
Capillary bronchitis.....														
Lobar pneumonia.....		2.42	.46	1.01	1.26	.34	.15	.70	.15	.20	.83	.04		
Pneumonia, unspecified.....	.31	.33	.046	.51	.19	.51	.30	.31	.30	.59	.10	.05		
Pleurisy.....		.55	.164		.39			.08						
Empyema.....			.007											
Pneumothorax.....														
Other diseases of the pleura.....	.11		.007				.15	.08	.15	.08				
Congestion of the lungs.....			.013											
Asthma.....	5.86	2.09	.75	1.01	.87	2.86	1.95	.70	1.95	.98	1.07	.32		
Chronic interstitial pneumonia including occupational diseases of the respiratory system.....														
Gangrene of the lung.....	.31	.44	.079	.51		.17	.31	.31	.31	.20	.04	.04		
Other diseases of the respiratory system (tuberculosis excepted).....	2.16	1.10	.21	.51	.39	.17	.90	.98	.90	.39	.08	.08		

Diseases of the digestive system

Diseases of the pharynx and tonsils.....	24.04	7.47	8.47	34.99	16.54	40.62	27.84	5.14	38.20	7.00	1.61
Diseases of the teeth and gums.....	7.40	1.10	.73	4.56	.68	1.18	4.19	1.40	2.56	.13	.25
Stomatitis.....			.046				.45	.08	.20	.03	.01
Adenoids.....			.02				.30				
Other diseases of the buccal cavity and annexa.....	.92	.11	.086	1.01	.10	.34	.30	.23	.39		.06
Diseases of the esophagus.....		.22	.04				.30				
Ulcer of the stomach.....	.62	.55	.131			.51	.45		1.38	.10	.04
Ulcer of the duodenum.....	4.62	1.10	.434	4.56	.29	.17	2.24	.08	2.36	.30	.11
Acute gastritis.....	3.39	3.52	.783	.51	.87	1.85	1.05	1.24	7.68	.63	.15
Chronic gastritis.....	2.47	.44	.35	3.55	.39	1.52	.45	.23	3.94	.10	.03
Acute indigestion.....			.013	.51							
Other diseases of the stomach (cancer excepted).....	2.47	.22	.237	2.03	.29		1.80	.08	1.38		.06
Diarrhea and enteritis (under 2 years of age).....			.217	.51	.10		.45	.23			.22
Intestinal autointoxication (under 2 years of age).....			.053	.51			.60				.04
Diarrhea and enteritis (2 years and over).....	6.47	4.18	1.94	3.04	1.55	4.55	6.14	2.10	8.66	.60	.52
Appendicitis, acute.....	1.23	.88	1.84	3.04	.68	9.94	2.54	.47	15.16	.93	.24
Appendicitis, chronic.....	1.54	.99	1.01	.58	.23	2.53	2.84	.62	6.10	.30	.09
Hernia.....	7.09	6.37	1.30	5.58	2.13	2.36	4.04	1.56	4.73	.97	.04
Intestinal obstruction.....			.04		.097					.10	.01
Intestinal autointoxication (2 years and over).....		.33	.033			.17				.13	
Other diseases of the intestines.....	7.40	4.18	2.02	8.11	2.61	4.72	3.89	2.72	17.92	.83	.59
Cirrhosis of the liver, not specified as alcoholic.....	.31		.02				.30	.08	.20		
Abscess of the liver (unqualified).....			.007							.07	
Other diseases of the liver.....			.092								
Biliary calculi.....	4.93	.66	.55	1.01	.29	.67	1.15	.23	1.77	.13	.03
Cholecystitis.....	1.23	.44	.18	3.55	.097	.34	4.19	.47	2.17	.27	.14
Other diseases of the gall bladder and biliary passages.....		.11	.099	1.01		.34	.30	.31	2.17	.03	.06
Pertitonitis, cause not specified.....	.31								.20		.04

Diseases of the genitourinary system

Acute nephritis (including unspecified under 10 years of age).....		.66	.079		.097	.17		.16		.13	.04
Chronic nephritis.....		.66	.16	.51	.39	.17		.23		.43	.04
Nephritis, unspecified (10 years and over).....			.013		.097					.03	
Pyonephritis.....		.22	.033				.15	.16			.01
Pyelonephrosis.....		.11	.046				.30	.08		.10	.01
Pyelitis.....	1.23	1.65	1.11	4.56	1.84	2.36	3.44	1.40	4.53	1.20	.28
Perinephritic abscess.....		.11	.072			.34	.15		.59		.06
Hydronephrosis.....	.31		.053		.19	.34	.15		.39		.01
Movable kidney.....			.013	1.01							
Other diseases of the kidneys and ureters (puerperal diseases excepted).....	.31	.11	.15	1.01		.17	.60	.23	1.97	.10	
Calculi of the urinary passages.....	3.39	.33	.30	2.03		.34	2.09	.31	1.77	.10	.09
Diseases of the bladder (tumors excepted).....	3.08	1.43	.81	5.58	.87	1.69	2.54	1.17	6.50	.27	.18
Stricture of the urethra.....	.31	2.09	.24			.34		.54	.20	.27	.11
Other diseases of the urethra, urinary abscess, etc.....	.92	1.21	.28	.51	.39	.34	.45	.39	2.76	.20	.09
Acute prostatitis.....	1.23	.33	.14			.51		.08	1.97	.05	.06
Chronic prostatitis.....	2.16	.66	.35	.51	.097	2.86	1.05	.16	3.54	.03	.05
Abscess of the prostate.....			.007								.01
Hypertrophy of the prostate.....	1.23	1.43	.16	1.01	.29		.60	.47		.10	.06
Other diseases of the prostate.....	.31		.007				.15				

TABLE 7-A—DISCHARGES AND DEATHS IN HOSPITALS OF THE PANAMA CANAL, 1933—Continued
RATES PER 1,000

Disease	EMPLOYEES ONLY		ALL CASES (including employees)										City of Colon	City of Panama
			CANAL ZONE											
			ATLANTIC SIDE				PACIFIC SIDE							
			Total	Excluding Army and Navy		Army and Navy (officers and enlisted men)	Excluding Army and Navy		Army and Navy (officers and enlisted men)					
Americans	Others	Americans		Others										
<i>Diseases of the genitourinary system—continued</i>														
Hematocoele			.11	.007								.03		
Hydrocele			.99	.15	.19	.17	.30	.16	.39			.13	.10	
Other diseases of the male genital organs, not specified as venereal			1.65	.38	.48	1.35	.75	.39	2.56			.37	.13	
Cysts of the ovary			.62	.20	.51							.20	.11	
Salpingitis and pelvic abscess, female			.31	.69	.77		1.05	1.56	.43			.97	.43	
Other diseases of the ovaries and diseases of the tubes and parametrium				.12	.097			.23	.13			.13	.13	
Leukorrhoea			.31	.026					.08			.10		
Dysmenorrhoea			.11	.12	.097	.17	.30	.39				.10	.03	
Cervicitis			.11	.49	2.03	.77	3.29	1.09				.03	.28	
Endometritis			.11	.20	1.01	.48	.45	.23				.20	.13	
Stenosis of the cervix				.013								.03	.013	
Prolapse of uterus				.03	.51	.10	.75	.23				.03	.013	
Uterine hemorrhage (nonpuerperal)			.31	.14	.51	.19	.51	.23				.23	.025	
Other diseases of the uterus not specified as venereal			.31	.44	4.06	.97	2.54	1.71	.51			.50	.51	
Nonpuerperal diseases of the breast (cancer excepted)				.15	.51	.19	.45	.31				.13	.089	
Other diseases of the female genital organs, not specified as venereal			.31	.20	1.01	.29	1.05	.47				.13	.089	
<i>Diseases of pregnancy, childbirth, and the puerperal state</i>														
Abortion with septic conditions				.04				.078				.03		
Abortion without mention of septic conditions (to include hemorrhages)			.31	.94	4.06	.14	4.19	1.01				1.30	.47	
Ectopic gestation, without mention of septic conditions				.066				.23				.07	.051	
Other accidents of pregnancy (not to include hemorrhages)				.09	.51	.19	.30	.16				.03	.063	
Placenta previa				.03			.45					.03	.013	
Other puerperal hemorrhages				.06		.10		.16				.03	.063	
Puerperal septicemia and pyemia—not specified as due to abortion				.04		.10		.078				.03		
Puerperal albuminuria and eclampsia				.14		.19	.15	.62				.17	.076	
Other toxemias of pregnancy				.35	1.52	.68	.45	.39				.53	.22	
Cesarean operation				.013		.10						.03		
Lacerations, puerperal, old or recent, of cervix and perineum				.10	.51	.10	.60	.31				.03	.051	
Other surgical operations and instrumental delivery on account of childbirth				.32	1.52	.29	1.50	.39				.33	.16	

Other accidents of childbirth.....	.11	.10	.60	.31	.087	.076
Puerperal disease of the breast.....	.03	.51			.087	.013
Following childbirth (not otherwise defined).....	.03			.078		.038
<i>Diseases of the skin and cellular tissue</i>						
Furuncle, carbuncle.....	.36	.29	.90	.62	.98	.18
Phlegmon, acute abscess.....	1.68	2.42	4.19	2.57	7.28	1.20
Trichophytosis.....	.84	.10	2.09	.39	10.83	.03
Scabies.....	.05	.10		.16	.20	.03
Elephantiasis.....	.007	.10				
Prickley heat.....	.007					.03
Ulcer of skin.....	.13	.10	.15	.16	.79	.063
Tropical ulcer.....	.17					
Impetigo contagiosa.....	.07	.29	.15	.078		.025
Impetigo simplex.....	.03	.51	.15		.10	
Urticaria.....	.06	.10	.30	.16		.013
Eczema.....	.013		.15		.03	
Ingrowing nail.....	.19	.39	.75	.078	.79	.038
Other diseases of the skin and annexa, and of the cellular tissue.....	.76	.68	2.24	.54	5.12	.11
<i>Diseases of the bones and organs of locomotion</i>						
Osteomyelitis.....	.14	.19	.30	.16	.59	.013
Periostitis.....	.033	.097			.067	.013
Other diseases of the bones (tuberculosis excepted).....	.079	.19	.45		.13	.013
Ankylosis.....	.04	.51			.39	
Acute arthritis.....	.30	.51	.17	.86	1.38	.127
Synovitis.....	.14	.19	.15	.078	2.36	.025
Other diseases of the joints (tuberculosis and rheumatism excepted).....	.27	1.01	.30	.078	2.76	.05
Other diseases of other organs of locomotion.....	1.20	.68	4.19	1.01	12.80	.28
<i>Congenital malformations (stillbirths not included)</i>						
Congenital hydrocephalus.....	.02				.033	.025
Spina bifida and meningocele.....	.11	.87			.39	.06
Congenital malformations of the heart.....	.02			.078		.013
Other congenital malformations.....	.83	4.35	1.05	.62	2.76	.215
<i>Diseases of early infancy (under one year of age)</i>						
Malnutrition.....	.12	.097	.45	.16		.13
Other congenital debility.....	.079	.19	.45		.033	.08
Premature birth.....	.21	.19	.75	.16	.50	.08
Injury at birth, Cesarean operation.....	.033		.15	.23	.033	
Injury at birth, without Cesarean operation.....	.29		2.09	.54	.033	.23
Atelectasis.....	.007					.013
Other diseases peculiar to early infancy.....	.013	.097		.078		

TABLE 7-A—DISCHARGES AND DEATHS IN HOSPITALS OF THE PANAMA CANAL, 1933—Continued

RATES PER 1,000

ALL CASES (including employees)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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Ill-defined causes

Sudden death.....	.31	.33	.0430	.078025
Ill-defined.....	6.17	4.40	1.10	4.49	1.95	5.32	1.9753
Infection of undetermined origin.....	.....	.11	.066	.....	.....	.....	.....	.....	.....	.13	.....	.025
Not specified or unknown.....	.....	.11	.013	.....	.....	.....	.....	.....	.....	.03	.....	.....
<i>Supplemental violent and accidental causes</i>												
Accidents from agricultural machinery.....	.....	.....	.013	.....	.....	.....	.15	.....	.20	.....	.....	.....
Other machinery accidents.....	.31	.....	.046	.....	.....	.....	.60	.....	.....	.....	.....	.....
Other railroad accidents.....	.....	.77	.046	.....	.....	.....	.....	.23	.....	.....	.....	.051
Other street car accidents.....	.....	.....	.013	.....	.....	.....	.15	.....	.....	.....	.....	.....
Automobile accidents (primary).....	1.23	.33	.32	.....	.....	.....	.75	.47	2.76	.033	.....	.18
Motorcycle accidents.....	.31	.22	.02	.....	.....	.....	.15	.078	.....	.....	.....	.013
Other land transportation accidents.....	.....	.11	.013	.....	.....	.....	.....	.078	.....	.033	.....	.....
Water transportation accidents.....	.....	.....	.007	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Normal physiological conditions</i>												
Normal pregnancy.....	.....	.....	.55	.....	.77	.....	1.50	1.32	.....	.53	.....	.29
Normal labor.....	.92	.....	4.43	.....	7.93	.....	10.77	8.02	.....	7.17	.....	2.06
Newborn child.....	.....	.....	4.57	.....	8.42	.....	11.52	8.10	.....	7.20	.....	2.13
No disease (companion, observation, etc.).....	12.33	3.85	4.41	.....	2.61	.....	17.81	3.66	33.08	2.10	.....	.96
Total.....	343.09	210.55	106.55	348.88	133.97	252.32	291.53	137.93	520.77	76.07	38.00	.....

TABLE 8—CONSOLIDATED HOSPITAL AND COLONY REPORT, 1933

Classification of patients	Remaining January 1, 1933			Admitted			Died			Discharged			Transferred			Remaining Dec. 31, 1933		
	White American	White foreign	Black	White American	White foreign	Black	White American	White foreign	Black	White American	White foreign	Black	White American	White foreign	Black	White American	White foreign	Black
Gorgas Hospital:																		
Employees.....	17	5	62	818	201	1,461	9	4	79	810	193	1,360	4	1	28	12	8	56
Army and Navy.....	101			3,185			11			3,156			17			102		
Panamanian Gov't.....	6	4	20	192	89	435	12	4	21	178	34	389	2	1	31	6	4	14
Charity.....	40	37	66	1,732	843	2,654	25	19	145	1,701	829	2,488	5	5	30	41	27	57
All others.....																		
Total.....	164	46	148	5,927	1,134	4,560	57	27	245	5,845	1,106	4,238	28	8	98	161	39	127
Corozal Hospital:																		
Employees.....	3	1	26	2		14			6	1		4		1	1	1		29
Army and Navy.....				87						82			1			7		
Panamanian Gov't.....	1	96	474		8	81		4	14		100	537			4			
Charity.....	4	11	24	1	1	20			5		2	8			5	2	10	26
All others.....		18	90	11	6	25			2	5	7	34	2		1	8	17	78
Total.....	8	126	614	101	15	140		4	27	88	109	583	3	1	11	18	27	133
Cripples.....		3	20		1	2						1		1	1		3	20
Chronic, medical and surgical cases.....		5	59		2	59						3		1	42		6	73
Colon Hospital:																		
Employees.....	2		13	147	3	485	1		17	133	1	408	13	2	65	2		8
Army and Navy.....	28			987			4			891			109			11		
Charity.....	2	1	5	63	31	267	1		18	62	31	248			3	2	1	3
All others.....	10	3	22	555	225	1,397	9	4	71	514	198	1,251	30	22	81	12	4	16
Total.....	42	4	40	1,752	259	2,149	15	4	106	1,600	230	1,907	152	24	149	27	5	27
Palo Seco Leper Colony:																		
Panamanian Gov't.....		4	83			6			2								4	87
Charity.....			19		1				5								1	14
Total.....		4	102		1	6			7								5	101
Total by classes:																		
Employees.....	19	6	101	967	204	1,960	10	4	102	944	194	1,772	17	4	94	15	8	93
Army and Navy.....	132			4,259			15			4,129			127			120		
Panamanian Gov't.....		100	557		9	97		4	16		100	538		1	13		4	87
Charity, cripples and chronics.....	9	24	147	256	125	783	13	4	49	240	117	649	2	3	82	10	25	150
All others.....	54	58	178	2,298	1,074	4,076	34	23	218	2,223	1,034	3,773	37	27	112	61	48	151
Grand total.....	214	188	983	7,780	1,412	6,916	72	35	385	7,533	1,445	6,732	183	35	301	206	85	481

TABLE 9.—NUMBER OF DAYS HOSPITAL TREATMENT FURNISHED AND AVERAGE NUMBER IN HOSPITAL EACH DAY OF THE VARIOUS CLASSES OF PATIENTS, 1933

Class of patients	Number of days treatment				Average number in hospital each day			
	Amer- ican	Foreign	Black	Total	Amer- ican	Foreign	Black	Total
Gorgas Hospital:								
Employees.....	8,090	3,423	19,603	31,116	22.16	9.38	53.71	85.25
Army.....	48,690			48,690	133.40			133.40
Navy.....	1,539			1,539	4.22			4.22
Panamanian Government.....	4	5	56	65	.01	.01	.15	.18
Charity.....	5,248	2,306	6,257	13,811	14.38	6.32	17.14	37.84
All others.....	11,895	10,436	31,740	54,071	32.59	28.59	86.96	148.14
Total.....	75,466	16,170	57,656	149,292	206.76	44.30	157.96	409.02
Corozal Hospital:								
Employees.....	226	197	9,355	9,778	.62	.54	25.63	26.79
Army.....	3,059			3,059	8.38			8.38
Navy.....	6			6	.01			.01
Panamanian Government.....		17,077	90,327	107,404		46.79	247.47	294.26
Charity.....	675	4,190	9,335	14,200	1.85	11.48	25.58	38.90
All others.....	2,136	6,591	29,239	37,966	5.85	18.06	80.11	104.02
Total.....	6,102	28,055	138,256	172,413	16.72	76.86	378.78	472.36
Cripples.....		1,095	7,118	8,213		3.00	19.50	22.50
Chronics, medical and surgical cases.....		1,836	23,647	25,483		5.03	64.79	69.82
Colon Hospital:								
Employees.....	864	25	3,834	4,723	2.37	.07	10.50	12.94
Army.....	8,197			8,197	22.46			22.46
Charity.....	738	288	2,441	3,467	2.02	.79	6.69	9.50
All others.....	3,101	1,751	10,139	14,991	8.50	4.80	27.78	41.07
Total.....	12,900	2,064	16,414	31,378	35.34	5.65	44.97	85.97
Palo Seco Leper Colony:								
Panamanian Government.....		1,460	26,757	28,217		4.00	73.31	77.31
Canal Zone Government.....		182	6,023	6,205		.50	16.50	17.00
Total.....		1,642	32,780	34,422		4.50	89.81	94.31
Total by classes:								
Employees.....	9,180	3,645	32,792	45,617	25.15	9.99	89.84	124.98
Army.....	59,946			59,946	164.24			164.24
Navy.....	1,545			1,545	4.23			4.23
Panamanian Government.....	4	18,542	117,140	135,686		50.80	320.93	371.74
Canal Zone Government, charity, cripples and chronics.....	6,661	9,897	54,821	71,379	18.25	27.12	150.19	195.56
All others.....	17,132	18,778	71,118	107,028	46.94	51.45	194.84	293.23
Grand total.....	94,468	50,862	275,871	421,201	258.82	139.35	755.81	1,153.97

TABLE 10.—CONSOLIDATED REPORT OF ADMISSION, HOSPITALS AND DISPENSARIES, 1933

All classes of patients	White	Black	Total
Admissions to hospitals, excluding Corozal farm (cripples and chronic ward).....	9,189	6,855	16,044
Admissions of employees to quarters.....	3,646	3,882	7,528
Total admissions to hospitals and quarters.....	12,835	10,737	23,572
Less number of patients transferred between hospitals and from quarters to hospitals, whose admissions are duplicated in the above figures.....	250	338	588
Net admissions to hospitals and quarters.....	12,585	10,399	22,984
<i>Employees only</i>			
Employees admitted to hospitals.....	1,171	1,960	3,131
Employees admitted to quarters.....	3,646	3,882	7,528
Total admissions of employees.....	4,817	5,842	10,659
Less number transferred between hospitals and from quarters to hospitals, whose admissions are duplicated in the above figures.....	55	174	229
Net admissions of employees.....	4,762	5,668	10,430
Annual admission rate per 1,000 employees to hospitals and quarters.....	1,467.94	622.86	844.94

TABLE 11.—REPORT OF DISPENSARIES, 1933
EMPLOYEES TREATED IN QUARTERS

Dispensary	Remaining January 1, 1933		Admitted		Died		Discharged		Transferred		Remaining December 31, 1933	
	White	Black	White	Black	White	Black	White	Black	White	Black	White	Black
Ancon [*]	1	13	764	1,193	.....	.....	735	1,140	29	62	1	4
Balboa.....	5	3	1,516	771	.....	.....	1,519	774	.....	.....	2	.....
Pedro Miguel.....	.....	.....	342	450	.....	.....	342	446	.....	3	.....	1
Gatun.....	1	.....	139	226	.....	.....	135	218	5	7	.....	1
Colon.....	8	26	874	1,124	.....	.....	881	1,130	.....	.....	1	20
Madden Dam.....	.....	1	11	118	.....	.....	11	111	.....	8	.....	.....
Total.....	15	43	3,646	3,882	.....	.....	3,623	3,819	34	80	4	26

Dispensary furnishing treatment	Days treatment furnished			Average number treated in quarters per day		
	White	Black	Total	White	Black	Total
Ancon.....	1,851	5,930	7,781	5.07	16.25	21.32
Balboa.....	4,927½	4,715½	9,643	13.50	12.92	26.42
Pedro Miguel.....	983½	1,677½	2,661	2.69	4.60	7.29
Gatun.....	275½	1,050½	1,326	.75	2.88	3.63
Colon.....	3,140½	10,025½	13,166	8.60	27.47	36.07
Madden Dam.....	16	427	443	.04	1.17	1.21
Total.....	11,194	23,826	35,020	30.67	65.28	95.95

ALL CASES TREATED

Dispensary	Employees			Nonemployees			Total		
	White	Black	Total	White	Black	Total	White	Black	Total
Ancon.....	7,222	17,204	24,426	7,217	16,138	23,355	14,439	33,342	47,781
Balboa.....	11,493	15,044	26,537	16,089	13,575	29,664	27,582	28,619	56,201
Pedro Miguel.....	3,826	7,898	11,724	6,509	15,999	22,508	10,335	23,897	34,232
Gatun.....	3,098	6,786	9,884	4,040	8,221	12,261	7,138	15,007	22,145
Colon.....	5,812	14,789	20,601	13,258	19,439	32,697	19,070	34,228	53,298
Madden Dam.....	3,949	6,926	10,875	1,208	2,509	3,717	5,157	9,471	14,628
Total.....	35,400	68,647	104,047	48,321	75,881	124,202	83,721	144,564	228,285

^{*} Includes 3,330 contractors' employees. [†] Includes 4,897 contractors' employees. [‡] Includes 1,043 members of families of contractors' employees. [§] Includes 2,093 members of families of contractors' employees.

TABLE 12.—AVERAGE NUMBER OF DAYS IN HOSPITAL AND QUARTERS FOR EACH ADMISSION,
EMPLOYEES ONLY, 1933

	White	Black	Total
Hospitals:			
Gorgas.....	10.83	18.93	15.59
Colon.....	6.59	9.13	8.51
Average for hospitals.....	10.33	16.72	14.28
Quarters:			
Ancon.....	2.52	5.24	4.17
Balboa.....	3.25	6.12	4.22
Pedro Miguel.....	2.88	3.75	3.37
Gatun.....	2.06	4.80	3.76
Colon.....	3.59	8.92	6.59
Madden Dam.....	1.45	3.88	3.66
Average for quarters.....	3.10	6.27	4.72



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